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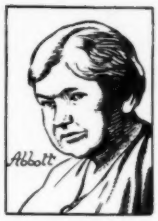

Digitalis in Cardiac Disease

WITHOUT CONGESTIVE HEART FAILURE OR AURICULAR FIBRILLATION

F. R. SCHEMM*

GREAT FALLS CLINIC, GREAT FALLS, MONTANA

IN 1785 Withering in his half-apologetic preface to "An Account of the Foxglove" said: "It is better the world should derive some information, however imperfect, from my experience, than that the lives of men should be hazarded by the unguarded exhibition of digitalis, *or that a medicine of so much efficacy should be condemned and rejected as dangerous and unmanageable.*" (The italics are mine.)

In the last quarter of a century authority has occupied itself so intensely with instructing us in its hazards and has built up such a host of contraindications to its use, that the use of digitalis in many hands at present is almost entirely confined to those cases which show their cardiac disease in the form of grossly evident congestive failure or auricular fibrillation. My comments, "however imperfect," are offered in the hope "that a medicine of so much efficacy shall not be condemned or rejected as dangerous and unmanageable" in certain other situations in which it may prove useful or life-saving. For while digitalis is often given when not needed, it is, in our experience, quite as often withheld when it is badly needed.

This seems to be accounted for by several factors, such as: (1) the improper use of the drug through *fear* of its effects; (2) forbidding the use of the drug in the presence of a normal heart, or in the absence of clear evidence of myocardial failure, and (3) the practice of ascribing to digitalis most of the complications which may occur naturally in the course of serious cardiac disease.

As to the first factor mentioned, fear of the drug may result paradoxically in such actual *overdosage* that the drug is condemned, or on the other hand, in such *underdosage* that confidence in its usefulness is destroyed.

Misuse by overdosage very often results from disregarding one of Withering's least quoted admonitions: "not to repeat the dosage too quickly but to allow sufficient time for the effects of each to take place, as it was found very possible to pour in an injurious quantity of the medicine before any of the signals for forbearance appeared." Ignoring this admonition frequently results in intoxication with results that increase timidity in its use and give rise to many mythical instances of sensitization to the drug. With timidly given small doses, at short intervals of only two, three, or four hours, the last dose is often given well before the full effect of the preceding dose is apparent. Fear of the drug dictates this small dose given at a too short interval.

This is often the explanation of the so-called cumulative intoxication which is said to develop suddenly when a marked diuresis occurs. Our cases, managed on a high fluid regimen especially when a mercurial diuretic is given, as a rule have a greater diuresis than those handled

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with a restriction of fluids. Yet we have never observed this phenomenon of cumulative intoxication even though some of our patients have received more than the usual amount of digitalis for their weight and have exhibited the usual therapeutic response in the form of a slowing of heart-rate and relief of dyspnea. We have, however, seen symptoms and signs suggesting digitalis intoxication when a profuse mercurial diuresis induces hypovolemia, signs and symptoms which are relieved easily by a little extra salt and water, while digitalis is continued. There is actually no evidence that digitalis accumulates in the extracellular fluid; indeed embryonic duck heart assays suggest that it remains in the extracellular fluid less than an hour.

What is thought to be a cumulative action of digitalis after diuresis from digitalis concentrated in the remaining extracellular fluid, seems more likely from our observations to be the cumulative effect of the last dose of digitalis given at too short an interval. This can easily occur where the fluid accumulation is so great as to cause mechanical embarrassment which keeps the pulse high, even though an otherwise full digitalis effect has been achieved by the dose preceding the last one.

It is easy to bring about simple overdosage intoxication wherever some factor other than failure of the myocardium or auricular fibrillation is responsible for the elevated heart rate and dyspnea. Besides the factor of the mechanical effect of a large accumulation of fluid, one must recognize the effect of fever, of thyrotoxicosis, or of a severe anxiety state, and not push digitalis in an effort to make it do what only the aspiration of fluid, an antipyretic, iodine or propyl thiouracil, or a sedative can do. In such cases it is best to give only an estimated digitalization dose and then a moderate maintenance dose until these complicating factors have been brought under control by other suitable means.

Misuse by underdosage is often the result of fear of the drug's effect in the face of vomiting, diarrhea, or a slow pulse. When Withering directed that the drug be stopped "on the first appearance of its action on the kidney, the stomach, the pulse, or the bowels" he was obviously considering the case in which there is no previous or coincident slowness of pulse or disturbance of the stomach or of the vomiting center. If no digitalis has been given, one, of course, may confidently give it in an effective amount

FERDINAND R. SCHEMM

to a patient with obvious congestive failure in the presence of a pulse reduced to 30 by a coincident heart block. Likewise, one may achieve gratifying rapid control of vomiting by the use of digitalis by vein—notably, of course, in cases with auricular fibrillation, but also frequently in other cases in which anoxia affects the vomiting center in the brain or the gastrointestinal mucosa so as to produce repeated vomiting.

THE situation which taxes courage and judgment, however, is that in which, as a result of heart disease, the pulse may become very slow or vomiting appear in a patient who has been on a maintenance dose of digitalis or is in the very early stages of being digitalized. If the patient has not been seen for some time and has been on what was thought to be a maintenance dose of digitalis one must always bear in mind that he may, in fact, be completely undigitalized. This is particularly true if the patient has not been seen for from three to six months. In that length of time, if one has only slightly underestimated the patient's maintenance dose, all real digitalis effect may have disappeared al-

though he has taken one or two doses every day. Often the patient has forgotten to take a dose or two a week which has resulted in the loss of all digitalis effect; this can be demonstrated by comparing the number of tablets gone from his bottle with the number of days since he was last seen. In such case the vomiting may disappear and the response be identical with the rapid administration of the same amount of digitalis that would be given had the patient not been "on digitalis." These same remarks apply to the new patient who is in the very early stages of being digitalized.

While digitalis has no effect on the heart rate in complete heart block with idioventricular rhythm, it will often prove to have, as MacKenzie and others noted, a very beneficent effect on the myocardium, as evidenced by the relief of nocturnal dyspnea and of dyspnea on exertion, or of anoxic central vomiting, even in the absence of any evidence of gross congestive heart failure.

THE second factor that has greatly limited use of digitalis is the alleged impairment of the functioning of a normal heart by its administration. This idea was based on work which appeared to demonstrate that the use of digitalis resulted in a reduced volume output in the normal heart. In the last few years data from newer technics applied to man and to animal experiments are in conflict with the older work, so far as the effect of *therapeutic* dosage is concerned. However, for fear of hindering the action of an apparently normal heart, digitalis is frequently withheld whenever frank gross abnormality of the heart is not obvious. This is partly because overdosage-misuse, resulting in toxic, not therapeutic, dosages of digitalis in pneumonia and thyrotoxicosis, and in circulatory collapse, gave digitalis such a bad name in these conditions that it is now often withheld in such cases when they might, in our experience, survive with its use.

Even in the absence of complicating disease it is often impossible to be sure that a heart is, in fact, normal. Only the results of a therapeutic trial of digitalis may reveal that myocardial disease or impairment actually does exist. Many such therapeutic trials have convinced us that only arrogance can explain the habit of concluding that a normal heart exists from the evidence obtained by auscultation, the electrocardiogram, circulation times, etc., in the very ill patient, especially when an all-important satisfactory history cannot be obtained.

In a certain number of these cases (for example, in pneumonia, now that pyrexia can usually be controlled quickly and one can more often use the indication of a tachycardia out of proportion to the temperature), one may see a gratifying and even life-saving response to a therapeutic trial of digitalis, indicating that under cover of the thyrotoxicosis or pneumonia or circulatory collapse there indeed existed, or had developed, an important degree of myocardial failure.

In my residency days, patients in their fifth, sixth, or seventh decades of life with an adenoma of the thyroid without thyrotoxicosis, would all too often fibrillate wildly postoperatively and require rapid emergency digitalization. Their electrocardiograms had been normal and they had been carefully examined and interrogated by competent internists who had been unable preoperatively to detect any reason for the use of digitalis or for anticipating fibrillation. Now, to the great satisfaction of our surgical colleagues, we usually digitalize such patients preoperatively. We have been unable to detect any harmful effects or clinical evidence of reduced myocardial function pre- or postoperatively, even though some of them undoubtedly do have normal hearts.

Of course, one can hurt any such patient by "pouring in," as Withering puts it, "an injurious quantity of the drug." But if this is avoided we believe that the fear of the effect of digitalis on a normal heart and our inability in complicated cases to be sure of the presence of myocardial disease or myocardial insufficiency, should not be allowed to interfere with a short therapeutic trial of a drug that might be life-saving.

This same situation obtains to an even greater degree in patients suffering with chronic pulmonary disease in whom the pulmonary findings make it extremely difficult to decide whether or not some degree of pulmonary passive congestion or left ventricular failure exists as a result of recent or long-standing right heart strain. In treatises on the differential diagnosis in this situation, the writer with good clinical experience usually mentions that there are cases in which this question cannot be answered by the usual tests. Our own experience is such that we give digitalis a trial in most cases where the patient is in really serious difficulty with asth-

matoid bronchitis, bronchiectasis, or in any other condition where one is entitled after careful consideration to suspect that the presence of an element of chronic cor pulmonale is responsible for some degree of symptoms and findings.

Furthermore, a therapeutic trial of digitalis should not, in our experience, be neglected in cases of acute or chronic Bright's disease or cirrhosis of the liver with edema and ascites. Advancing renal and hepatic disease syndromes are frequently associated with myocardial failure, and it is often difficult on the basis of examination or electrocardiography to judge at what point digitalis might be helpful. Before the time of Bright's observations, Withering remarked in his Inferences: "that the drug may be used with advantage in every species of dropsy, except the encysted form, and that it may be subservient to the cure of diseases unconnected with dropsy." In connection with "diseases unconnected with dropsy," we have found the drug very useful in controlling disabling degrees of ventricular extrasystoles and of paroxysmal auricular tachycardia when congestive failure was not present and, indeed, when the hearts in these cases appeared to be perfectly normal.

Even if the results of such therapeutic trials are occasionally disappointing, we have seen no harm from them, and such trials often yield gratifying surprises to one who is humble enough to admit the difficulty in deciding whether a heart is normal or whether the early signs of heart failure are present. If one can put aside the idea that properly administered digitalis hampers the normal heart, its use on *well-considered* suspicion may prevent the development of the full-blown picture of congestive failure, left ventricular failure, or permanent auricular fibrillation. At the present time the commonly accepted criteria for the use of digitalis are as beautifully clear, and often are as late signs as cavitation and positive sputum in pulmonary tuberculosis.

THE third reason for an unjustifiable limitation of the use of digitalis is that almost every complication that occurs, in the course of observation in acute or chronic heart disease, has been attributed by some authority at some time to the use of digitalis. When any patient does badly we tend to look for a scapegoat, and in heart disease, it seems to me that the foxglove has been too often chosen for that role. The fallacy of *post hoc, ergo propter hoc* is pointed out to restrain undue enthusiasm for apparent favorable therapeutic responses. It is also a *post hoc* fallacy to attribute the welter of unfavorable events which may occur naturally in the course of heart disease to the use of digitalis, for any one with an adequate experience has seen all of these unfavorable events develop in cases of heart disease when digitalis was not in use.

> Withering made fair comment on the most dramatic of these unfavorable events, sudden death. He considered a lady (Case VI), suffering with dropsy and advanced heart disease, as "a fair case for a trial of digitalis." He prescribed for her, and a short time later learned that on the third day after his visit she had expired suddenly. Bad weather had kept the family from taking the prescription to the apothecary. Withering asks: "Had she died under its use is it not probable that the death would have been attributed to it?" Another patient (Case XII) had ascites and general anasarca. "I was satisfied that the digitalis was the only medicine from which I had anything to hope. It was therefore directed; but another patient requiring my assistance at a distance from town, I desired he would not begin the medicine before I returned, which would be early on the third day. On my return I was informed that the preceding evening as he sat in his chair, his head sunk upon his breast and he died." Withering concluded: "This case, as well as Case VI is mentioned with a view to demonstrate to younger practitioners how sudden and unexpected the deaths of dropsical patients sometimes happen, and how cautious we should be in assigning causes for effects."

Since Withering's time we have learned a great deal more about the details of what happens in a heart that is badly diseased. Almost every complication, as it has been recognized, has been said to be produced by digitalis because it has been seen to develop while the drug was being administered. Digitalis was said even to produce auricular fibrillation and flutter, and in the presence of acute coronary occlusion with myocardial infarction it is credited with producing pulsus alternans, heart block, rupture of the ventricle, and the throwing off of emboli, not to mention ventricular tachycardia and ventricular fibrillation. Assuming that digitalis is being skillfully used, neither the reasoning nor the data presented allay my suspicion that these conclusions are largely *post hoc, ergo propter hoc* fallacies.

In many texts and lectures, digitalis in the presence of myocardial infarction is only grudgingly conceded a place in the presence of fully established and grossly evident congestive heart

failure or in the presence of auricular fibrillation with a rapid ventricular rate, or of rapidly progressing left heart failure. Yet, rapid digitalization is recommended along with oxygen in acute profuse pulmonary edema which is so often precipitated by an acute myocardial infarction. In such desperate situations, *which might have been prevented by earlier use of digitalis,* the theoretical contraindications to its use, such as the production of ventricular fibrillation and rupture of the ventricle, are laid aside.

The advisability of freer use of digitalis in the presence of acute myocardial infarction is suggested by the fact that some two-thirds of the patients who survive their myocardial infarction develop congestive failure in the hospital or shortly after dismissal. Furthermore, if one looks in detail for the signs and carefully inquires into the history, a considerable number are found to have been suffering with congestive failure when infarction occurred. In such cases we give digitalis from the very beginning. In all cases we digitalize if we suspect the presence of myocardial failure. It is easy to overlook rapidly developing signs of failure in a patient who is tucked away in an oxygen tent and kept comfortable with opium. In the absence of signs of congestive heart failure, we have not hesitated to use digitalis when a rapid, feeble, or irregular pulse and dyspnea persist, unrelieved by oxygen and morphine. We give the digitalis slowly or rapidly, by mouth or if necessary by vein, as we would in ordinary congestive failure without complications.

The action of the drug on the non-necrotic portion of the myocardium appears to lead to improvement that may anticipate and prevent not only congestive failure, but also the development of the very disturbances of rhythm which are feared and which digitalis in *toxic* amounts may produce. Thus heart block may disappear with a general improvement, which apparently was in part induced by rapid digitalization, while ventricular tachycardia following infarction, whose persistence in the face of good doses of quinidine is producing rapid progressive failure, may come under control coincident to full digitalization. As to rupture of the ventricle following infarction, it is commonly observed only in those who pursue accustomed activity in spite of the presence of a recent infarction.

One can harm or kill even a healthy animal or man with an injudicious use of digitalis. But in our own experience with acute myocardial infarction, complications (including the onset of ventricular tachycardia and the occurrence of sudden death) appeared as often in those patients who were not receiving digitalis as in those who were receiving it. In a series of 265 consecutive cases, our own first-admission mortality rate was 10 per cent, compared with that of 16 per cent in a similar series of 286 cases. This suggests that the use of digitalis, in over one-half of our cases, was not strikingly harmful and may well have been beneficial. Many very unpromising cases in our series had failed to respond to rest, opiates, and oxygen, but responded to digitalis in therapeutic doses, when it was used as if an acute myocardial infarction were not present.

The use of digitalis in all of the disturbances of rate and rhythm except auricular fibrillation is usually frowned upon, at least until congestive failure develops. Yet we have occasionally found it to be very useful in any of these disturbances, including those in which only quinidine is customarily sanctioned. In all of these types, especially in the more desperately ill, we have noted instances in which the disappearance of the arrhythmia coincided with improvement in myocardial function which appeared to be brought about, at least in part, by a free use of digitalis.

In milder types of these disturbances such as ventricular extrasystoles or paroxysmal auricular tachycardia which have become disabling, the use of digitalis may result in their control and the relief of attendant anxiety states or disability; this is often seen after a suitable control period of confident reassurance, hygienic advice, and adequate sedation has proved entirely ineffective.

In older patients control of paroxysmal auricular tachycardia with digitalis may prevent the precipitation of myocardial failure or myocardial infarction. (We do not refer to the transient T wave changes which, even though they are belittled, do indicate the appearance of as much disturbance as is considered significant, for example, in an exercise tolerance test.)

In disabling degrees of ventricular extrasystoles the firmest reiteration of "It's just your nerves; your heart is normal; go home and forget about it" must be accompanied by relief of symptoms in order to overcome an anxiety state or cardiac neurosis. This relief can occasionally be achieved only by the temporary or continued

use of digitalis or quinidine. In our experience the digitalis is usually quite as effective as quinidine and a little bit safer. If, occasionally, extrasystoles or incomplete heart block is made worse by digitalis, we have seen no harm come of a properly carried out and observed therapeutic trial, in which the drug has been given at intervals of twelve to twenty-four hours and has been promptly withdrawn upon the appearance of unfavorable signs or symptoms.

The more serious disturbances of rhythm or rate, heart block (with or without ventricular asystole), or ventricular tachycardia, are often signs of as grievous a myocardial injury as is a true gallop rhythm. And in our experience, digitalis may at least tide the heart over until the harmful disturbance stops spontaneously, or it may actually, through effecting a general improvement in myocardial function, actively help to re-establish a normal rhythm. In any event we have seen the same disturbances of rate and rhythm (including ventricular tachycardia), which may develop when digitalis is given experimentally or clinically in toxic amounts, disappear with the use of full therapeutic amounts of digitalis when these disturbances have been produced by some other form of myocardial injury such as infarction of the myocardium.

CONCLUSIONS

These comments are offered in the hope of offsetting some of the paralyzing general rules for the avoidance of digitalis; the comments are not intended to belittle the hazards of an injudicious use of digitalis. They are inspired by our own clinical experience with the situations outlined above and by our consultations with well-trained men who, "following the book," have withheld digitalis where, on actual trial, it proved to be useful or life-saving. It appears that stress on the hazards of its use during the last quarter century has led to an undesirable degree of limitation of its use; and that general Rules have been well learned at the expense of Exceptions that are as important.

In restricting the use of digitalis to congestive failure and auricular fibrillation it is evident that we are reflecting the tremendous influence on our teachers of Lewis, whom MacKenzie once playfully and affectionately referred to as "a bit of a mechanical cardiologist." Yet even these traditional indications for digitalis have their exceptions. As we learn more of the role of sodium in congestive heart failure we see patients in the severest congestive failure who have so little real myocardial insufficiency that their edema clears with simple sodium regulation without the use of digitalis. Likewise, patients with auricular fibrillation with slow ventricular rates often do well for years without digitalis.

In addition to those factors outlined which have led to the condemnation of the drug as "dangerous and unmanageable" in many conditions where it is useful, the influence of the electrocardiograph should be mentioned. Its tracings are not as good guides for the continuation or withdrawal of digitalis as are clinical indications such as those laid down by Withering, and there is often confusion as to the difference between digitalis *intoxication* and digitalis *effect* which may lead to unjustified withdrawal or, on the other hand, to the unwise continuation of the drug.

In our experience, Withering's gift can be used effectively in myocardial disturbances other than congestive failure or auricular fibrillation. To demonstrate this it seems necessary:

(1) To avoid giving too little or too much of the drug and, as Withering advised, to allow sufficient time for the last dose to act before giving another dose.

(2) To dismiss our fear of a therapeutic trial of digitalis in the presence of a normal heart; and to admit that the presence of myocardial disease and early myocardial failure is sometimes hard to establish except by means of a therapeutic trial.

(3) To question the *post hoc* fallacies mentioned which attribute to the use of digitalis in therapeutic amounts the complications which arise in the natural course of serious heart disease or when toxic doses of digitalis have been given.

Immediate Gastrectomies in Acute Perforations

PAUL BANZET*

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I WANT to tell you that to be here today affords me both a great honor and a great pleasure. Your splendid Association is known all over the world, and I am most thankful to my excellent friend, Dr. Waltman Walters, and to the members of the committee for asking me to come here today.

I chose the subject of the treatment of acute perforations of gastric or duodenal ulcers because I think that some of the ideas I have and that we have in France are a bit different from the ones you have here.

The treatment of acute perforations of gastric or duodenal ulcers is either medical or surgical. The medical treatment has been debated. Some American surgeons have tried to cure acute perforation by continuous suction of the stomach, putting ice on the abdomen, and giving the patient penicillin and streptomycin, and from what I observed in the American papers I was able to read in France, I think those surgeons were fairly satisfied with their results. In France a surgeon in Paris has tried this method and reported good results. Personally, I will never treat a patient with an acute perforation in this way because I hate blind surgery or blind medicine, and this is a type of blind medicine.

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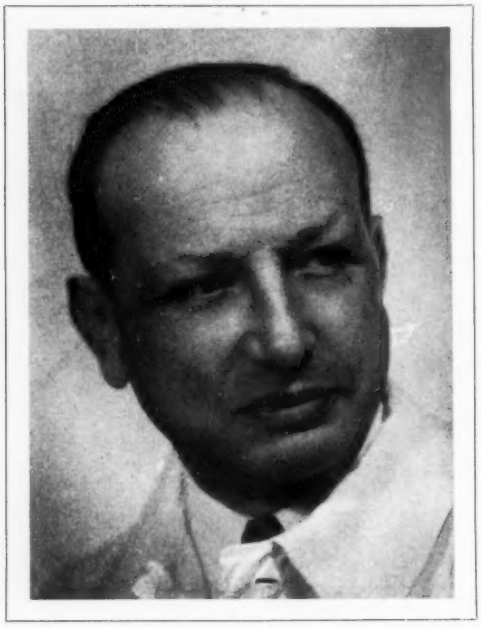
Presented November 1, 1949, before the meeting of the Interstate Postgraduate Medical Association of North America, Philadelphia, Pennsylvania.

Who can say with certitude in the presence of a patient who has a syndrome that may fake an acute perforation of the stomach or duodenum that it is really a perforation of the stomach or duodenum? I have seen perforations of the gallbladder that simulated absolutely a perforation of the stomach. I have often seen an acute perforation of the stomach which simulates an acute appendicitis, and I have also seen an acute appendicitis with perforation that, by the intensity of the pain, the rigidity of the abdominal wall, even by gas between the liver and the diaphragm, simulated an acute perforation of the stomach.

Perforation of the small bowel is exactly like perforation of the stomach.

I ask you, who would do a continuous suction of the stomach on a patient having a gangrenous appendix or perforation of the gallbladder? All the same, it is well to know that such treatment can be employed and can cure patients, and I am sure that if the patient was in such condition that surgery couldn't be done, it would be a good thing to try to make a suction and cure the patient without an operation. In all other cases I think that the treatment of acute perforation is surgical.

Many procedures can be employed. The most frequently used is suture of the perforation. We must see this in detail. My opinion is that in perforations there are two kinds of patients to consider. *The first type* is usually a young man who suddenly has all the symptoms of an



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acute perforation of the stomach, but if you look at his past history, he has never complained of any stomach pain. In these cases when you operate you find a small perforation, usually on the anterior side of the duodenum, with very soft edges and with no induration. In this case suture is very easy to perform and the patient in most cases does very well afterward. If you follow him up in the months and years to come, you often find that he is definitely cured of his ulcer. It seems as though the patient had developed an acute ulcer which perforated immediately, and the perforation was in itself the cure of the ulcer.

In some cases, those patients, having had suture of this kind of ulcer, will complain of a certain gastric pain, pain after meals, a certain impression of discomfort in the stomach. A very difficult problem is then presented, because after suture of an acute perforation, there are always adhesions and there is always a deformation of the duodenum due essentially to the scar and to the adhesions, so that, if you make an x-ray examination, you find a deformation of the duodenum. In some cases it is very difficult to know whether or not there is a recurrent ulcer.

If there is a recurrent ulcer you must operate upon the patient again and perform a gastrectomy, because this patient, having a recurrent ulcer, might very well have another acute perforation. And, finally, you will sometimes reoperate and do a gastrectomy on a patient who has no recurrent ulcer because of the difficulty of the correct diagnosis.

The second type is quite different; it is a patient who has an acute perforation, but he has an ulcer from which he has suffered for a long time. When you operate you find a perforation at the pylorus or on the duodenum or on the lesser curvature of the stomach, but, essentially, it is usually a big perforation with edges that are thick; there is a fibrous scar around the ulcer. In these cases suture is much more difficult to do. The sutures will tear and sometimes it is nearly impossible to have a really safe closure without making a resection of the ulcer and of the surrounding scar tissue. Sometimes the suture might make a stenosis of the pylorus, and then you are obliged to add a gastroenterostomy to the suture. (Personally I never do a gastroenterostomy in case of ulcer, gastric or duodenal. In my lifetime I have operated too many stoma ulcers, some with gastrocolic fistulas, and they are difficult and dangerous operations, so I have entirely abandoned gastroenterostomies in cases of ulcer.)

In most cases of old ulcers with induration of the edges, the suture is difficult; it is not always safe, and the patient will almost never be cured by this operation. Nearly always there will be either the same ulcer that will continue its evolution or a new ulcer will occur. In such cases I think the suture must be abandoned.

In those cases the preferred surgical treatment must be immediate gastrectomy. It is usually very easy to perform. It is surely not more difficult than in cases of ulcer without perforation.

Gastrectomy will surely cure the patient for years to come, and in a few moments we will see the results of this operation.

We have, then, three operations that we can use in acute perforations: (1) suture, (2) suture plus gastroenterostomy, and (3) gastrectomy. I never use suture with gastroenterostomy and only two remain.

I teach my pupils that in type 1 (patients who have never suffered before), if they find a small hole with smooth edges they can make a suture, but if it is a type 2 and if they find a perfora-

tion with thick edges, they must do an immediate gastrectomy.

This is what I teach, but I must tell you that personally, in all cases of acute perforations, I do an immediate gastrectomy. I think that operation is not more difficult than a suture. Of course, it must be done when you are sure to have good assistants, proper instruments, and in a hospital where the work will be easy to do. The results are excellent. Personally I have not done so many gastrectomies in acute perforation because in Paris the elder surgeons do not perform many emergencies; the young ones work on these cases, and I am unfortunately in the class of the elder ones, so I do not see so many acute perforations. I have done 35. In 35 such operations I have not lost one patient, and I must mention that in my hospital I have never seen a patient operated for acute perforation by one of my assistants, having a gastrectomy, who died after the operation. I think that the mortality of gastrectomy after acute perforation is not much higher than in usual gastrectomies, and this mortality is indeed very low.

As to the question of the time elapsed since perforation occurred, I think it is much less important than it was some years ago. Before we had sulfonamide drugs, penicillin, and streptomycin, the hours counted, and after six hours a perforation was supposed to be septic and the situation serious. I think that now with all the drugs we have at our disposal, the question of hours does not count so much.

I will tell you a story that illustrates this way of thinking.

I had a call once from a very able internist specializing in gastroenterology, who told me, "I have sent you, to your hospital, a young patient who has a pyloric stenosis. I do not know whether it is a carcinoma or an ulcer." I didn't see the patient. About a month later, I was called in my hospital by my assistant who told me: "There was a man here with an acute perforation who said he was sent by this doctor." I thought: "I think I know him, I suppose it is that young man with the stenosis." What had happened to this patient? He suffered a great deal from his stomach, but he was terribly afraid of surgery, so he did not come to see me as his doctor had told him.

I was called on a Saturday afternoon. The day before, Friday, at 8 P.M., he was taken with a severe pain in the abdomen. He thought it was his usual pain, but it increased, and as usually when he ate it disappeared; he took some soup and some spinach and then went to bed. He was very uncomfortable and passed a bad night. Early in the morning he tried to reach me, but I have two hospitals in Paris and he had been sent to the one where I never go on Saturday morning, so he didn't find me, lost a great deal of time, and finally arrived in my hospital at three o'clock in the afternoon. I saw him at four o'clock. He had all the symptoms of an acute peritonitis. It was a sure perforation.

I operated on this man at once. It was twenty hours after the perforation. I found in the abdomen all the spinach and the soup he had eaten the evening before. I found a tight stenosis by a very old duodenal ulcer and on the stomach a big perforation of a second ulcer, through which all the soup and the spinach had gone into the abdomen. I did an immediate gastrectomy on this dilatated stomach. It was an easy and short operation. I finished by carefully cleaning the abdomen, entirely closing the wound and putting in a suprapubic drain. This patient did extremely well and was discharged from the hospital twelve days later.

I would like to give you figures based on a larger number of cases, but all of my 35 gastrectomies confirm my opinion that gastrectomy is the real treatment for acute perforation of stomach or duodenum.

I THINK that the mortality in these cases is about the same as mortality in normal gastrectomy which, in fact, is very low. Last year, I was asked to make a presentation in London on my technic of gastric surgery and a demonstration of gastrectomy. To illustrate my talk I collected statistics, taking my thousand last cases of gastrectomies for ulcers, including all kinds of ulcers, perforated ulcers, normal ulcers, complicated ulcers. (One of these was a case I had operated here, in Philadelphia, three years ago. I had come to see Dr. Babcock and he did me the honor of giving me a case to operate at Temple University Hospital. It was a Negro who had a peptic ulcer of the stoma after gastroenterostomy with gastrocolic fistula.)

So, all these cases being in my statistics, I found that in the thousand last cases I had operated I had 6 deaths, which makes the mortality 0.6 per cent. It is surely very low and I was quite surprised at this figure. I counted and counted again to see if I had made an error.

Then I thought, "What is special in my technic? In France, most surgeons have a mortality in gastrectomies between, let us say, 1.5 and 2.5 per cent, among the best statistics. I am a surgeon like all surgeons, I have no secrets in performing my operations, my technic is the technic of all surgeons, so what is special in my way of doing that might explain this very low mortality?"

I think there are two points that seem really different from what others do, so I suppose they might be a reason for the low mortality rate. When I do a gastrectomy (the technic is exactly the same if it is a perforated ulcer or a nonperforated ulcer), I always make a high midline incision and the gastrectomy I do is a large one, of about three-quarters of the stomach. I suture the higher part of the stomach and anastomose the inferior part.

Figure 1 shows what happens when the anastomosis is done.

THE first special point is the way I suture the duodenum (Figure 2). I think most accidents which occur after gastrectomies are due to a duodenal leakage. To prevent this, I open the duodenum with no clamps on it. Then I make a pursestring suture with linen thread, all around the edge of the section. When this purse is tied, I have a small stump. A second pursestring will invert this stump, giving another stump that will be inverted in the same way. Finally, I make five layers—perhaps it is too much, but since I have employed this procedure I have never seen a duodenal leakage. When there are adhesions between the duodenum and the pancreas I use a special technic but the result is always the same and four inversions will cover the first suture of the duodenal stump.

The second special point is the way I make the sutures for the anastomosis. I figure it on a small bowel on which I am going to make an end-to-end anastomosis. The usual way of making a suture in France (and I must say that nearly all the surgeons that I have seen operate in foreign countries do about the same) is to do a first layer (Figure 3a), taking all the constituent layers of the intestinal wall, the mucosa, the muscle, and the serosa, and making an inversion of those edges. After having done this first layer, a second one (Figure 3b) is made, which is serosa-to-serosa to cover the first layer, and to complete the inversion. This technic, I think, has a certain number of faults: One is that the inversion of the edges narrows the anastomosis. This narrowing will increase in days following the operation because of the edema caused by this thick suture. And, in fact, a tube must always be put in the stomach to realize a continuous suction following the operation. Figure 4 shows the three layers of the intestinal wall: the serosa, muscle, and mucosa. The serosa sticks to the muscle, and the vessels are between the muscle and the mucosa.

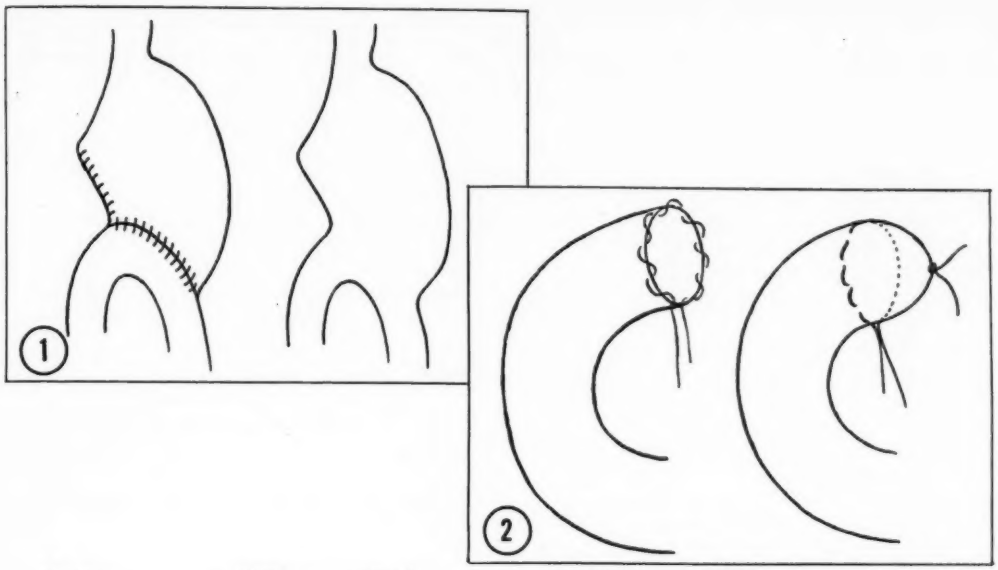
The second fault is that it might bleed between the stitches and a very careful hemostasis of the line of section has to be done.

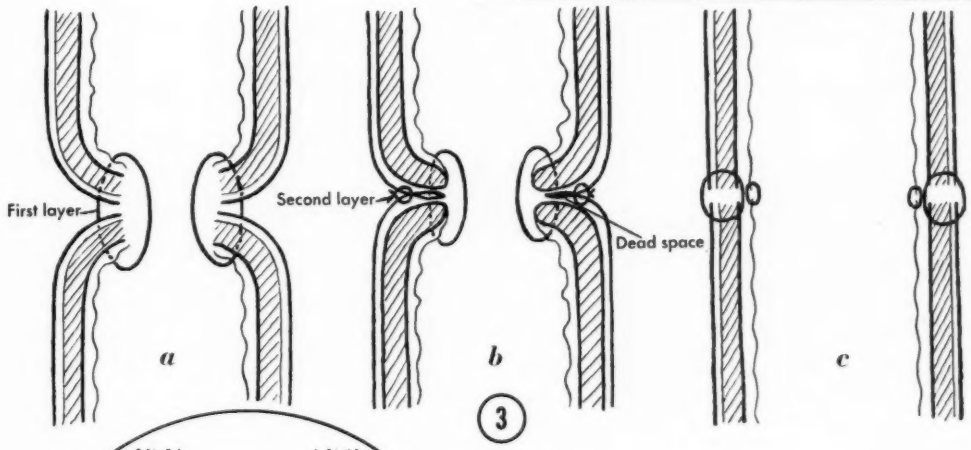
The third fault is that there is a dead space between the two rows of sutures and I think that nearly all the lung complications after gastric surgery are not at all due to general anesthesia but to septic emboli which come from this dead space between the two layers of sutures.

The way I make the sutures is a bit different. It was first described by a German surgeon a long time ago. I make two layers (Figure 3c). One is mucosa-to-mucosa; the other is muscle to muscle. (This suture of muscle to muscle in fact takes the serosa, as the serosa sticks to the muscle.) I call this an edge-to-edge suture; there is no inversion of the edges, no narrowing of the stoma; in fact, the stoma functions immediately and my patients begin to drink as soon as they are awakened after gastrectomy and I never put a tube in the stomach after the operation. Second, it cannot bleed because the vessels are tightly held in the suture of the muscle, and there is a continuous cover of mucosa that protects this layer towards the cavity of the stomach or of the intestine. If there is a little bleeding, there is no dead space and it would be immediately stopped; there would be a small hematoma between the two layers, and that is all that could happen. All these sutures are continuous sutures with catgut.

These are the small points of my technic which seem to me special, and I wanted to reveal them to you.

In cases of gastric perforation I use exactly the technic I just described to you. To suture the wound I always use wire. It is one of the things that I brought back from the States when I came here for the first time three years ago and Dr. Babcock interested me in using wire in surgery. Since I went back to France I have closed all the wounds with this steel alloy





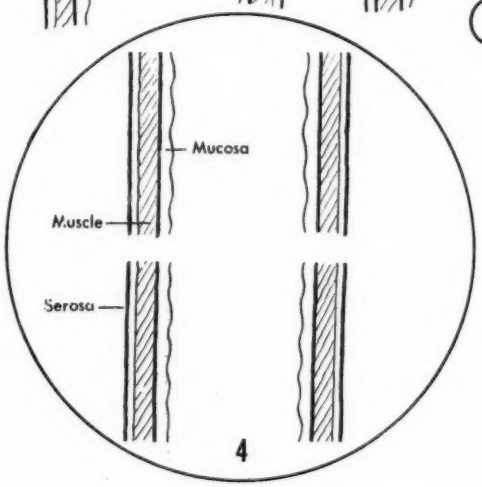


FIGURE 1. Drawing shows the type of gastrectomy performed. (Hofmeister—through the mesocolon.)

FIGURE 2. Closure of the duodenum: on the left is shown the first layer at the edge of the intestinal section (with linen thread); the right-hand sketch shows the first purse that will invert the stump. (Four inversions will be made one after another.)

FIGURE 3 *a* and *b*. An end-to-end anastomosis—with first a total layer, then a sero-serosa second layer; *c*. the edge-to-edge anastomosis with no dead space and no narrowing of the anastomosis.

FIGURE 4. The three layers of the intestinal wall (serosa, muscle and mucosa).

wire and I can say I am absolutely happy to use it. It is a perfect material. I have no postoperative hernias. When the wound is infected (and especially when you do a gastrectomy in acute perforation the wound may be infected), it will heal on the wire sutures as if there were no foreign body in the scar.

As to the question of drainage, I very seldom drain. I think one must make a very careful toilet of the interior of the abdomen, suck all liquid out of the abdominal cavity, and one might, in nearly all cases, close the wound with the precaution of giving the patient penicillin and such drugs. When there has been really too much leakage, as in the case of the man I spoke of to you a moment ago, I put in a drain; then I close the superior midline incision entirely and make a suprapubic buttonhole, through which I put a drain into the abdomen—Dr. Babcock's drain. You know of this drain, which is very excellent because it is made of stainless steel, is as big as a pencil, and permits continuous suction in the abdomen, which allows one to know what is happening inside. When nothing comes out by the suction you can remove the drain and, as it is very small, the wound is immediately healed and closed.

This is what I wanted to tell you about the treatment of perforations of gastric and duodenal ulcers.

After hearing Dr. Walters speak to you—not quite on the same subject, but nearly the same—I saw that our ideas were a bit different.* I don't know who is right. I think that it is worth a try, and I am sure that if the surgeons who are here try to do more gastrectomies in cases of acute perforation they will have great satisfaction from the results they will obtain and I hope they will finally think it is a good method to employ.

*WALTERS, WALTMAN: Diseases of the stomach and duodenum. Postgrad. Med. 7:259-267 (April) 1950.

COVER PAINTING HONORS WILLIAM HARVEY

THE first notation William Harvey made on a theory of the circulation of the blood appears in his records for the year 1616. It was twelve years later, however, that he published his great work, "The Anatomical Treatise on the Movement of the Heart and Blood in Animals," which has been described as "the greatest book in medical literature." With this discourse, Harvey effected a complete change in previous conceptions of the functions of the heart and the operation of the circulatory system.

Harvey, who received his medical degree from the University of Padua in 1602, was a student there of the famed Hieronymus Fabricius, recognized as the successor to the great anatomist Vesalius. Fabricius had published a work entitled *De Venarum Ostiolis,* "The Little Doors of the Veins," but he had not understood the actual significance of the venous valves. In his studies, Harvey demonstrated their true function as part of his proof of the circulation of the blood.

In common with most fundamental scientific pronouncements, Harvey's explanation of the action of the heart and circulation of the blood aroused considerable controversy, and many of his patients left him for more "orthodox" physicians. As his discoveries were verified by others, the soundness of his work was acknowledged and his achievements have been inspiration for scientific research in succeeding generations.

The cover painting by Edmund Kopietz was suggested by a portrait of the famous physician by Robert Hannah which is owned by the Royal College of Physicians in London.

LEMPERT DECOMPRESSION OPERATION FOR Hydrops of the Endolymphatic Labyrinth in Ménière's Disease

JULIUS LEMPERT*

NEW YORK CITY

MÉNIÈRE'S disease is diagnosable only through the process of exclusion. It consists of repeated sudden, severe attacks of vertigo and spontaneous nystagmus accompanied by nausea and vomiting. These attacks occur at intervals of unpredictable frequency and duration. The attacks are differentiated from all other forms of vertigo by being accompanied with severe tinnitus and a loss of perceptive hearing which usually progresses with each attack. If allowed to continue, these paroxysmal attacks usually result in complete inner ear deafness. As a rule, the vestibular function when tested between attacks shows diminished response as compared with that of the nonaffected ear.

PATHOLOGIC ASPECTS

In 1938 Hallpike and Cairns[1] first observed a hydrops of the vestibular and cochlear portions of the membranous labyrinth on histologic examination of the temporal bone of the affected ear in 2 cases of Ménière's disease which came to autopsy.

On the basis of these histologic observations and similar observations made since by others, it became logical to reason that the signs and symptoms of Ménière's disease are most likely caused by this hydrops of the endolymphatic labyrinth. The etiologic factors precipitating such hydrops are still to be determined.

Both the clinical picture and the histologic aspects of Ménière's disease permit the conclusion that it is a disease limited entirely to the internal ear and that both the vestibular and the cochlear portions thereof are involved.

It is therefore logical to assume that by effecting the complete degeneration of both the vestibular and the cochlear parts of the endolymphatic labyrinth in a case of monaural Ménière's disease, and thus preventing the recurrence of endolymphatic hydrops, it should be possible to permanently relieve the patient of the vertigo, which is vestibular in origin and the tinnitus, which is most likely of cochlear origin. A treatment of Ménière's disease cannot be considered completely adequate unless it relieves both of these distressing symptoms.

SURGICAL TREATMENT OF MÉNIÈRE'S DISEASE

In order to effect surgically the complete degeneration of both the vestibular and cochlear portions of the membranous endolymphatic labyrinth, otologists practiced either excision of the membranous endolymphatic external semicircular canal or its destruction by electrocoagulation, through a fistula created in the bony capsule of the labyrinth. The employment of either one of these surgical procedures resulted as

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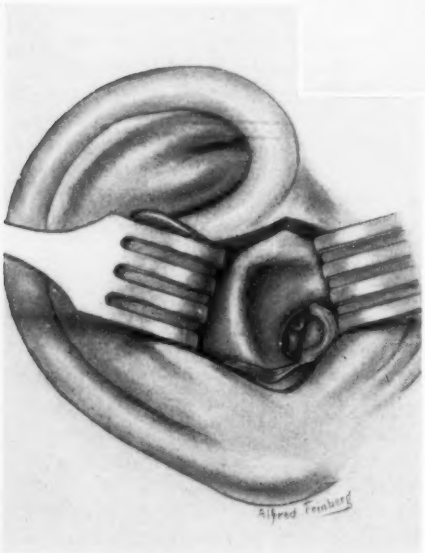
FIGURE 1. Three endaural incisions are made through skin and periosteum.

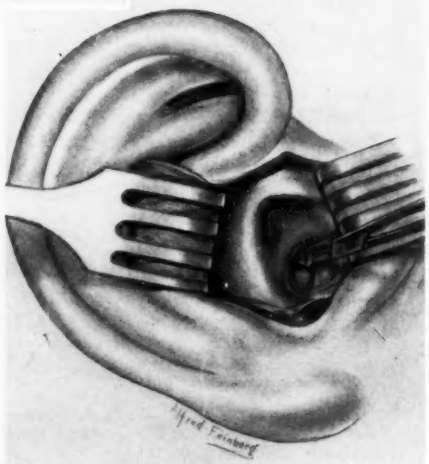
FIGURE 2. The skin flap is subperiosteally freed from its bony attachments and everted outward over the anterior margin of the concha.

FIGURE 3. The annulus fibrosis of the posterior half of the tympanic membrane is dislodged from the sulcus tympanicus with a narrow periosteal elevator.

FIGURE 4. The dislodged portion of the tympanic membrane is everted exposing to view the incudostapedial joint and round window niche.

FIGURE 5. With a sharp narrow steel clipper the long process of the incus is bisected close to its attachment to the head of the stapes.





Illustrations reproduced from: Lempert Decompression Operation for Hydrops of the Endolymphatic Labyrinth in Ménière's Disease. Arch. Otolaryng. 47: 551-570 (May) 1948.

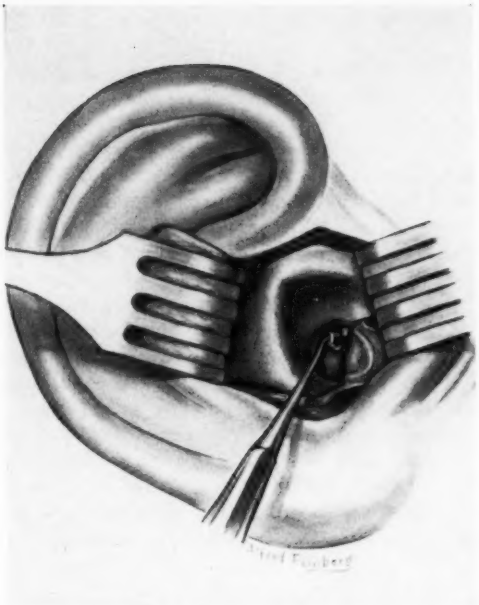


FIGURE 6. The vestibular labyrinth is decompressed by hooking and removing the stapes with its footplate from the oval window.

FIGURE 7. Oval window is seen with stapes removed. The cochlear labyrinth is now decompressed by inserting an electrically driven 2 mm. polishing burr into the round window niche and destroying the round window membrane.

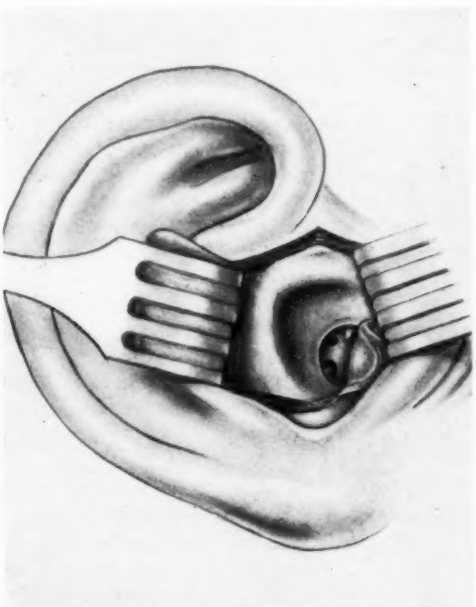


FIGURE 8. The decompressed vestibular and cochlear labyrinths are now seen.

FIGURE 9. The dislodged portion of the tympanic membrane and the temporarily everted skin and periosteum of the external auditory canal are replaced to original position.

JULIUS LEMPERT

a rule in the cessation of the paroxysmal attacks of vertigo, which are vestibular in origin. The tinnitus, however, which is of cochlear origin, remained as a rule unaffected by such treatment. This latter fact led me to suspect that partial section or electrocoagulation of the vestibular portion of the endolymphatic labyrinth does not necessarily result in degeneration of the cochlear portion of the endolymphatic labyrinth with its organ of Corti.

In my pursuit of a research study of this problem, my attention was attracted by the clinical observation that when the external semicircular canal of the endolymphatic labyrinth was accidentally destroyed or removed during the performance of the fenestration operation for clinical otosclerosis the accident did not always result in a still further recession of the preoperatively impaired hearing. Such observation strengthened my belief that partial vestibular labyrinthectomy does not necessarily always result in degeneration of the entire endolymphatic system.

However, not until I carefully studied histologically the internal ears of our experimentally fenestrated Rhesus monkeys[2] was I convinced that destruction of the vestibular portion of the labyrinth, when performed under sterile precautions, did not result in degeneration of the rest of the endolymphatic labyrinth and of the organ of Corti.

Only in rare instances in which infection of the labyrinth followed such a surgical procedure did degeneration of the entire endolymphatic labyrinth and of the organ of Corti take place. Such infection will also travel and involve the cochlear nerve trunk.

The aforementioned clinical and histologic observations led to the following conclusions:

Partial destruction of the vestibular portion of the endolymphatic labyrinth is inadequate for the treatment of Ménière's disease. Since it does not as a rule result in degeneration of the cochlear part of the endolymphatic labyrinth and of the organ of Corti, it cannot be expected to relieve the tinnitus. The destruction of the most sensitive and most readily activated external semicircular canal will prevent the sensation of vertigo but will not necessarily prevent the recurrence of endolymphatic hydrops. When on occasion the endolymphatic labyrinth and the organ of Corti do degenerate after the partial destruction of the vestibular part of the endolymphatic labyrinth, they do so only as a result of postoperative infection. When the endolymphatic labyrinth degenerates as a result of postoperative infection, the tinnitus is not relieved and, moreover, is perpetuated by the cochlear neuritis which results from the extension of the inflammation from the organ of Corti to the cochlear nerve trunk.

It therefore became obvious that any technic expected to relieve both the vestibular and the cochlear symptoms must supply a reasonable basis for belief that the entire endolymphatic labyrinth will degenerate as a result thereof and thus render the recurrence of endolymphatic hydrops impossible. Furthermore, the degeneration of the endolymphatic labyrinth when accomplished through the technic employed must not be the result of excessive postoperative inflammation or infection.

Based upon the above-mentioned clinical observations following labyrinthine surgery for Ménière's disease and the histologic observations following labyrinthine surgery in the Rhesus monkey, I developed the new technic illustrated in Figures 1 to 9 for effecting atraumatic and aseptic degeneration of both the vestibular and cochlear portions of the endolymphatic

labyrinth for the cure of both vertigo and tinnitus in Ménière's disease.

ADVANTAGES OF THE TECHNIC

1. Transtympanic drainage of the vestibular perilymph by the removal of the stapes and of the cochlear perilymph by removing the round window membrane without opening the mastoid process or traumatizing the endolymphatic labyrinth results in aseptic degeneration of the entire endolymphatic labyrinth and of the organ of Corti.

2. By effecting complete degeneration of the entire endolymphatic labyrinth the recurrence of endolymphatic hydrops can be definitely prevented.

3. Such atraumatic aseptic degeneration of the endolymphatic labyrinth can result in the cure of both the vertigo and the tinnitus in Ménière's disease. Of the 15 patients who were operated on with this technic, 12 were freed from both vertigo and tinnitus. Three were freed of vertigo but not of tinnitus, though the intensity of the tinnitus even in these cases has diminished to a great extent.

4. Because the postoperative inflammatory reaction following this technic is of a minimal degree, the convalescence is much more rapid and attended by much less discomfort.

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THE CHARITY PATIENT
(By John Rogers, 1866)

(Courtesy of the New York Historical Society)

Epithelioma of the Anus

HARLOW B. McQUARRIE[1] AND LOUIS A. BUIE[2]

MAYO FOUNDATION AND MAYO CLINIC, ROCHESTER

THE first comprehensive account of a series of anal epitheliomas probably is that of Raiford,[1] which appeared in 1933. In the same year Brust and one of us[2] (Buie) studied 51 cases of anal epidermoid carcinoma and emphasized the high degree of malignancy of such lesions. In 1938, Kerr[3] stated that five-year survival rates of patients who had operable lesions were in inverse proportion to the degree of malignancy, and he advocated radical surgical treatment followed by roentgen-ray and radium therapy.

In 1940 Gabriel[4] reported 55 cases of anal carcinoma and pointed out that such lesions in males usually are well differentiated microscopically, and he also observed that in these cases the lesion usually arises "low" in the anal canal. This was in contrast to the situation in females, in whom the lesions were found to be more anaplastic, usually arising "high" in the anal canal. Gabriel advised block dissection when there is clinical evidence of involvement of inguinal glands, but his best results were obtained in cases in which well differentiated primary lesions were treated with radium alone.

Pack and Rekers,[5] Raven,[6] Brown and Warren,[7] Keyes,[8] Korbl,[9] Darier and Ferrand,[10] and Montgomery[11] all have recorded observations concerning the metastatic spread of malignant anal lesions of epithelial origin. Their opinions vary widely concerning the incidence of involvement of inguinal glands, but all have called attention to this complication. Several have emphasized the danger of confusing basal-squamous-cell epithelioma with basal-cell epithelioma, but most writers have paid particular attention to the mixed, transitional form. Furthermore, almost all authors have called attention to metastasis by way of the rectal lymphatic vessels. Apparently, visceral involvement by way of blood vessels occurs rarely.

Beginning with Moore,[12] who made the first report of a case of anorectal melano-epithelioma in 1857, and including such authors as Paneth,[13] Chalier and Bonnet,[14] Gerritzen,[15] and Bacon and Pena,[16] approximately 85 cases have been reported, and all writers stress the poor prognosis.

Basal-cell epithelioma occurs in the anus rarely. Probably the first 2 cases to be reported were those of Brust and one of us[2] (Buie), published in 1933. Since then Guess,[17] Tucker and Hellwig,[18] and Lawrence[19] have reported 4 additional cases. The most noteworthy observation which is common to all reports is the fact that true basal-cell carcinoma does not metastasize by way of lymphatic or blood vessels, but erodes adjacent structures relentlessly. Consequently, it is very difficult to eradicate the lesion completely by surgical operation.

MATERIAL IN PRESENT STUDY

This report is based on a study of 137 cases of malignant anal neoplasm of epidermoid origin. From 1920 to 1944, inclusive, histories of 161 patients were recorded in the files of the Mayo Clinic, but in 24 instances it was found that the lesions did not involve the anal canal as a primary neoplasm. These were omitted, leaving 137 cases. Malignant melanomas are included in this study. All biopsy and surgical specimens were preserved in a 10 per cent solution of formalin, and some studies were made of frozen sections of fresh tissue. Usually, blocks were removed from selected areas, and after sections had been made, the specimens were stained with hematoxylin and eosin and fixed on permanent slides.

When a study is made of the type of lesions which

Abridgement of thesis submitted by Dr. McQuarrie to the Faculty of the Graduate School of the University of Minnesota in partial fulfillment of the requirements for the degree of Master of Science in Proctology.

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TABLE 1

DISTRIBUTION ACCORDING TO AGE: 127 ADULT PATIENTS WHO HAD SQUAMOUS-CELL OR BASAL-SQUAMOUS-CELL EPITHELIOMAS OF THE ANUS*

DECADE	MALES	PER CENT	FEMALES	PER CENT	TOTAL	PER CENT
1-4	3	5	2	3	5	4
5	18	35	23	31	41	32
6	17	33	19	25	36	28
7	12	23	25	33	37	30
8	2	4	6	8	8	6
TOTAL	52	100	75	100	127	100

*One child 4 years old, not included in this table, had a squamous-cell epithelioma of the anus.

TABLE 2

CARDINAL SYMPTOMS AMONG 127 PATIENTS WHO HAD SQUAMOUS-CELL OR BASAL-SQUAMOUS-CELL EPITHELIOMA OF THE ANUS

SYMPTOM	REPORTED, NUMBER OF TIMES*	PER CENT	DURATION, MONTHS
Pain	91	70	9.3
Rectal bleeding	88	68	12.2
Itching	14	11	57.0
Constipation	25	20	7.0
Frequent small bowel movements	13	10	7.5
Loss of weight	38	30	8.0
Mass felt by patient	34	27	9.8
Unsuccessful anal operations	26	20	Less than 12.0 (maximum)

*Number of times reported, in 127 cases.

involve the rectal outlet, certain anatomic characteristics should be considered. The anal canal is about 2 cm. long. Its external margins are lined by stratified squamous epithelium, and a transitional type of cell lines the walls of the anal canal. The venous drainage from the anastomosing plexus surrounding this area empties into the portal circulation through the superior hemorrhoidal veins, and into the systemic circulation through the middle and inferior hemorrhoidal veins. Also, from this area, lymphatic channels extend to the inguinal lymph nodes, and from the area cephalad to the pectinate line this drainage is carried out through the lymphatic system of the rectum. These facts were kept in mind while this study was carried out; consequently, the 24 cases in which the lesions did not primarily involve the anal canal were discarded. In the 137 cases which remained, we found that 117 lesions were squamous-cell epitheliomas, 1 was a squamous-cell epithelioma in an infant, 10 were basal-squamous-cell epitheliomas, 7 were melano-epitheliomas, and 2 were basal-cell epitheliomas. We shall next consider these four types of lesions in sequence.

SQUAMOUS-CELL AND BASAL-SQUAMOUS-CELL EPITHELIOMAS OF THE ANUS

Incidence—Including the 10 patients who had basal-squamous-cell epitheliomas, 127 adult patients or 92 per cent of this series of 137 patients with malignant anal neoplasms of epidermal origin had squamous-cell epitheliomas. This number represents about 2 per cent of all malignant anal and rectal lesions diagnosed at the Mayo Clinic during the twenty-five-year period from 1920 to 1944, inclusive. The ratio of females to males among the 127 patients was 3 to 2 and the

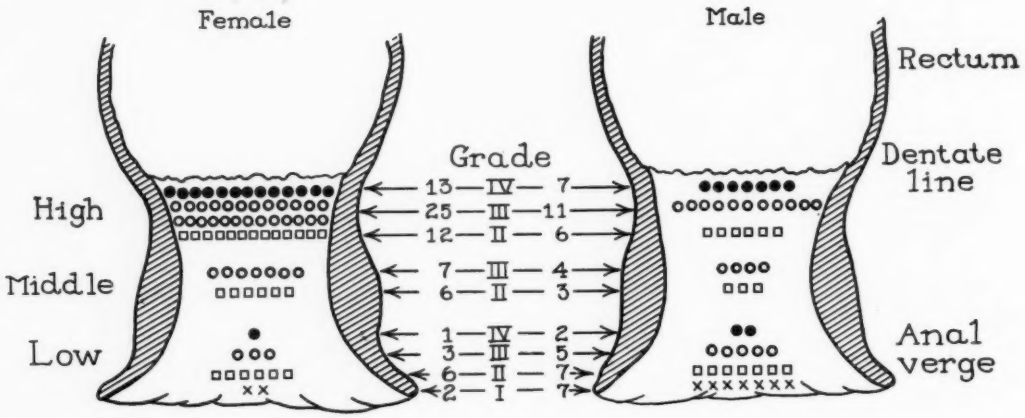

FIGURE 1. Distribution of 127 anal epidermoid carcinomas in respect to location in the vertical axis of the anal canal and in respect to the grade of malignancy of lesions among males and females.

average age was 55.8 years. The majority of lesions occurred during the fifth, sixth, and seventh decades of life (Table 1). The youngest adult patient was 28 years old and the oldest was 79 years old. The infant was 4 years old.

Symptoms—Patients complained of pain, bleeding, mucopurulent discharge, and other irregularities of bowel habit. Several had discovered the lesion themselves (Table 2). Often symptoms were not severe. Twenty per cent of these patients had unhealed wounds which followed recent anal operations performed before they were examined by us. In some, the wounds had healed but symptoms had persisted.

Gross pathologic aspects—In 3 cases the disease appeared in the form of small areas of dermatitis, with abrasions or fissures as predominant features. Induration was one of the chief characteristics, but in 2 cases the lesions were soft and moist. Sixty-four patients had ulcers with piled-up edges; in 23 there were flat, indurated plaques; in 15 there were nodules and in 6 there were cauliflower-like lesions. The nature of some lesions was obscured by unhealed surgical wounds. Infection was always present. Acute and subacute abscesses and fistulas were present in about 10 per cent of cases. The role played by anal glands as portals of entry of infection is interesting. These glands occur in about 50 per cent of human beings.

The size of the lesions varied from superficial areas of ulceration as little as 4 mm. in diameter, to large masses which filled the anal canal and most of the rectum.

In 117 cases we were able to determine the situation of the lesion. The tumor masses were centered in the posterior anal quadrant of 41 patients, the anterior quadrant of 35, the left lateral quadrant of 19, and right lateral quadrant of 16 patients. No significant difference was found in this arrangement as between male and female patients.

For the purpose of designation of the position of tumors in relation to the vertical axis, the anal canal was divided into "high" and "low" portions. Neoplasms which extended into both were classed as being in a "middle" zone. Whereas among males the tumors were fairly evenly distributed in this respect (Figure 1), among females four times as many tumors were situated in the high position as in the low.

Hard, palpable inguinal nodes were noted in 15 per cent of these 127 cases, anemia in 8.5 per cent, and loss of 5 pounds or more in 30 per cent.

Malignant neoplasms were suspected in 92 per cent of the 127 cases prior to pathologic examination, and the diagnosis was corroborated by microscopic examination.

Histopathologic aspects—Microscopic study of basal-squamous-cell epitheliomas (Figure 2*a*) revealed small, dark-staining basal cells in palisade formation, and large, pale squamous cells containing keratin and forming pearly bodies. Other than this, no difference in pathologic or clinical features was observed between these and squamous-cell epitheliomas. The degree of malignancy was determined by Broders' method.[20] He says that: "Squamous cell epitheliomas control themselves by differentiating into keratin, which, when found in circumscribed masses are called pearly bodies, and into cells, which, if they do not contain keratin, have differentiated beyond their ability to reproduce, such as the large flat squamous cells."

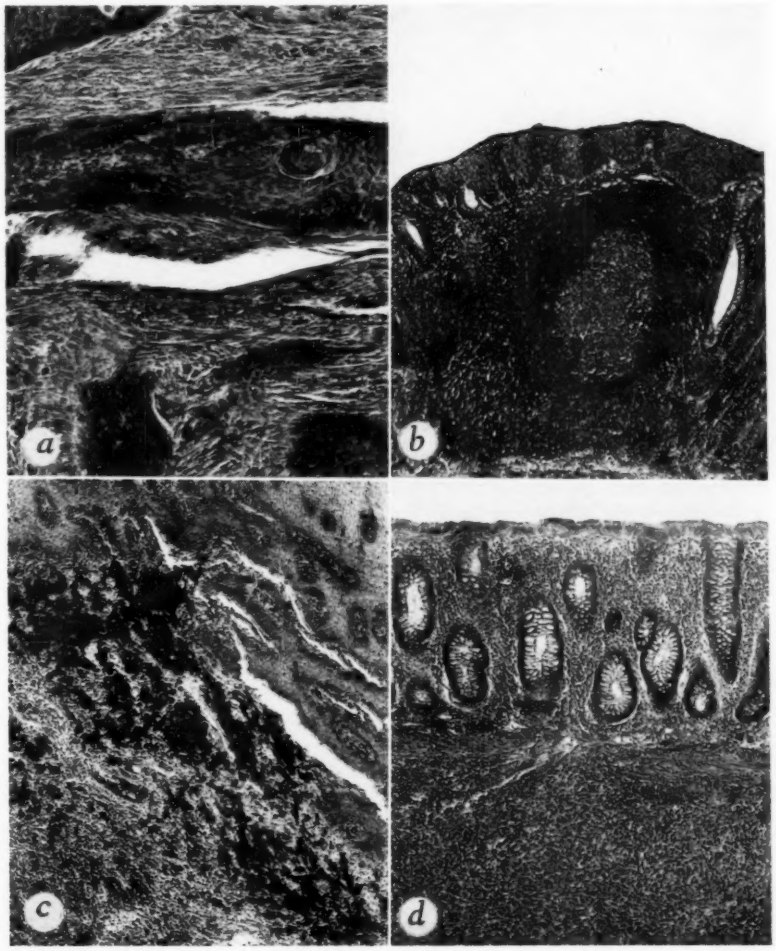

FIGURE 2*a*. Basal-squamous-cell epithelioma of the anal canal (x 130); *b*, anal epidermoid carcinoma extending into the rectum over the mucosa (x 50); *c*, melano-epithelioma in the anal canal with apparent anal origin (x 55); *d*, same melano-epithelioma as shown in Figure 2*c*, extending into the rectum beneath the submucosa (x 65). All sections stained with hematoxylin and eosin.

Grade 1 represents a carcinoma "in which differentiation or self-control ranges from almost 100 to 75 per cent and undifferentiation from 0 to 25 per cent." Grade 2 is that "in which differentiation or self-control ranges from 50 to 25 per cent, and undifferentiation from 25 to 50 per cent." Grade 3 is that "in which differentiation or self-control ranges from 50 to 25 per cent, and undifferentiation from 50 to 75 per cent." Grade 4 is that "in which differentiation or self-control ranges from 25 per cent to practically 0, and undifferentiation from 75 to 100 per cent." Broders says further that: "When mitotic figures are numerous, especially if they are irregular, one is inclined to raise the grade slightly."

TABLE 3

TYPE OF TREATMENT AND LENGTH OF SURVIVAL: 95 PATIENTS WHO HAD SQUAMOUS-CELL OR BASAL-SQUAMOUS-CELL EPITHELIOMA OF THE ANUS SEEN BETWEEN 1920 AND 1939*

LESION, GRADE	TREATMENT	PATIENTS		TRACED PATIENTS SURVIVING 5 YEARS	
		TOTAL	TRACED	NUMBER	PER CENT
1	Radiation	6	6	0	0
	Surgical	2	1	1	100
2	Radiation	12	11	1	9
	Surgical	16	14	8	57
3	Radiation	24	21	6	29
	Surgical	21	19	8	42
4	Radiation	6	6	0	0
	Surgical	8	8	2	25
Total	Surgical	47	42	19	45
	Radiation	48	44	7	16
Totals		95	86	26	30

*As indicated in the text, this group consisted of 127 patients seen between 1920 and 1944. So that we might trace the patients for five years, however, we included in this table only those patients with squamous-cell or basal-squamous-cell epithelioma seen between 1920 and 1939. This produced the figure of 95.

In this group of 127 cases 9 lesions were grade 1; 40 were grade 2; 55 were grade 3, and 23 were grade 4. About 40 per cent were grade 1 or 2 and 60 per cent were grade 3 or 4.

Position of lesions—The grade of malignancy of tumors in this group bore no relationship to the gross type of lesion, to the position of tumor in relation to the circumference of the anal canal, or to the age of the patient. An interesting relationship was observed between the grade of malignancy and the position of the lesion in the long axis of the anal canal, and the sex of patient (Figure 1). Neoplasms which occurred high in the anal canal generally were of high grade, and those in the low position generally were of low grade. In this respect our study corroborates the work of Gabriel[4] done in 1940.

In 86 patients of the 127 adults in this group the lesion originated in the anus and invaded the rectum. This spread usually took place beneath the submucosa, but sometimes the mucosa was invaded directly. In 1 case the neoplasm grew over the rectal mucosa (Figure 2*b*). The usual behavior of these lesions was to spread cephalad into the loose rectal tissue and to disseminate through rectal lymphatic channels. Perirectal nodes were involved in 30 per cent of 47 surgically excised specimens. Fifteen per cent of the patients had palpable inguinal nodes which clinically indicated spread of the disease. The distance from the inguinal area, together with the low grade of malignancy of lesions situated low in the anal canal, may be factors which influence the low incidence of metastasis to inguinal lymph nodes. Metastasis by way of blood vessels is rare. The livers of 2 patients were considered by surgeons to be included in the malignant process, and there was 1 roentgenologic diagnosis of possible pulmonary involvement.

Treatment and prognosis—As we have said, this group consisted of 127 adult patients with squamous-cell or basal-squamous-cell epithelioma of the anus seen between 1920 and 1944. However, for purposes of evaluation of treatment and prognosis, we wished to trace the patients for five years. This meant that we had to restrict the number to those seen between 1920 and 1939. Such restriction produced the number of 99 patients. Ninety-five of these 99 patients received treatment, as indicated in Table 3.

For purposes of comparison, we divided these 95 cases according to the grade of malignancy and the type of therapy administered (Table 3). "Radiation treatment" in the second column of this table indicates that radium or roentgen-ray therapy was employed alone or after palliative colostomy. "Surgical treatment" indicates that some type of surgical operation was carried out in the disease area, with or without postoperative radiation treatment. Operability was based on: (1) general health of the patient, (2) spread of the malignant process into adjacent structures, and (3) distant metastasis. The grade of malignancy was given its proper place of importance, but it did not affect the management of the patient.

Of the 95 patients in this part of our study, 47 had operable lesions. Forty-two of these 47 patients were

TABLE 4

SURVIVAL RATES ACCORDING TO GRADE OF LESION: 90 TRACED PATIENTS WITH SQUAMOUS-CELL OR BASAL-SQUAMOUS-CELL EPITHELIOMAS OF THE ANUS*

LESION, GRADE	DEATHS IN STATED YEAR					SURVIVED 5 YEARS	
	1	2	3	4	5	NUMBER	PER CENT
1	3	0	0	1	2	1	14
2	7	6	2	2	1	9	33
3	6	6	7	4	4	14	34
4	7	4	2	0	0	2	13
Total	23	16	11	7	7	26	29

*Four of these 90 traced patients did not receive any type of treatment.

observed for at least five years after operation. Nineteen (45 per cent) were living five years after treatment. There were 2 postoperative deaths which occurred while the patients were confined to the hospital, a mortality rate of 5 per cent. The types of operation performed were (1) radical posterior excision, (2) rectal amputation, and (3) combined abdominoperineal resection. Radiation therapy was given postoperatively to 76 per cent of the patients treated surgically and to all who had recurrent lesions.

Since surgical intervention received first consideration, and because radiation was used alone, principally in inoperable cases, results obtained by radiation therapy are impressive. Forty-eight patients were treated in this manner. Of these, 44 were observed for five years and 7 (16 per cent) were living five years after treatment was begun.

Twenty-six patients survived five years (Table 4). This number is 29 per cent of the patients who were observed for five years, 27 per cent of patients treated and 26 per cent of the entire series.

Patients who had grade 1 lesions constituted an unfortunate group. All except 2 had far-advanced, inoperable lesions; 3 patients died during the first year.

A higher percentage (34 per cent) of patients who had grade 3 lesions survived five years than did patients with grade 2 lesions (33 per cent) (Table 4).

In the category of grade 4 lesions the number which were operable and the number which were inoperable were about equal. Two patients who had grade 4 lesions survived five years. One had an early tumor which was treated by combined abdominoperineal resection. This patient was still living nineteen years after operation, and had no evidence of recurrence. The other underwent combined abdominoperineal resection and postoperative radiation therapy to the perineum and groins. This patient returned after two years, and during the next three years received eight courses of radiation therapy because of recurrence of the neoplasm. He died after the elapse of five years and three months. The condition in his case followed the usual fatal course of that of patients who have grade 4 epidermoid carcinoma of the anal canal.

Anal epithelioma of infancy—One case in this study will be presented separately because it presented such unusual features. A boy 4 years old came to the Mayo Clinic on March 30, 1944. When he was 2 years old a small, papillomatous type of tumor of the anus which had been present at birth, became irritated. It was excised and found to be malignant; radiation therapy was administered. Later, a metastatic node was removed from the left inguinal region. When this patient was first examined by us, palpable lymph nodes were found in the inguinal, axillary, submental, and cervical regions. The tissues over the left mandible were swollen and painful. The liver was enlarged and tender. Roentgenologic studies disclosed erosion of the left mandible and indefinite pulmonary shadows. A study of specimens brought by the patient's parents disclosed a grade 4 squamous-cell epithelioma. Roentgenray therapy was administered to the left mandible; it reduced the swelling and decreased pain. After the patient was taken home, positive evidence of metastatic involvement of the lungs developed. The boy died June 20, 1944.

MELANO-EPITHELIOMA OF THE ANUS AND ANAL CANAL

Seven cases of melano-epithelioma constitute 5 per cent of this series of 136 cases of malignant anal neoplasms, and about 1 per cent of all cases of melano-epithelioma recorded in the files of the Mayo Clinic from 1920 to 1944, inclusive (Table 5). Four of the patients were males, and 3 were females. The average age was 58 years. Usually, the tumors originated high in the anal canal and spread cephalad beneath the submucosa of the rectum (Figure 2*c* and *d*). The consistency of the tumors was softer than that of other malignant neoplasms. Only one lesion in this area, which is often darkened by underlying varicosities, possessed significant color changes. Symptoms were mild, indefinite, and developed late in the rapid course of the disease. The average duration of symptoms prior to initial examination was nine weeks, as com-

TABLE 5

SALIENT CLINICOPATHOLOGIC DATA: 7 PATIENTS WHO HAD MELANO-EPITHELIOMA OF THE ANUS

PATIENT	AGE, SEX	SYMPTOMS	LESION, GROSS TYPE, LOCATION	CLINICAL DIAGNOSIS	TREATMENT	RESULT
1	58 F	Pain, bleeding, urgency 5 months' duration	Ulcerated nodule, 3 cm. Left anterior anal canal; nodes not involved	Carcinoma of anal canal	Posterior amputation, colostomy, radium postoperatively	Death of carcinoma, 5 months
2	44 M	Pain, bleeding, urgency 3 weeks' duration	Sessile polyp (pigmented) at border, 2.5 cm. Anterior wall upper anal canal, low rectum; nodes not involved	"Malignancy"; possible melano-epithelioma	Wide excision, radium postoperatively	Death, 21 months, with involvement of lungs
3	52 F	None	Anal tag	Anal tag	Local excision	Alive, well January 7, 1946 (10 years)
4	59 F	Bleeding, pain, 6 weeks' duration	Irregular polyp, 3 cm. Anterior wall at dentate line; rectal nodes involved	Polypoid lesion	Posterior amputation after colostomy, radium postoperatively	Death, 7 months; roentgen evidence of metastasis to lungs
5	68 M	Pain, bleeding, mucus; patient felt lump, 2 months	Firm nodule (not hard) 3 by 5 cm. Anterior anal canal, lower rectum; nodes not involved	Anal and rectal carcinoma	Excision (Quénu-Tuttle) radium postoperatively	Death, 4 months; liver, omentum involved at necropsy
6	62 M	Pain, bleeding, mucus, frequency of bowel movement, 3 months	Large ulcer. Anterior right anal canal, lower third of rectum. Inguinal nodes not involved	Rectal carcinoma	Inoperable. Loop colostomy and radium	Death, 6 months; left cervical and right inguinal nodes involved; liver enlarged, nodular
7	63 M	Continued rectal discharge, bleeding, pain, itching after 2 operations and roentgen therapy to anal nodules, 1940-1941	Anal scarring. Nodule, left anterior anal canal, 2 cm. Malignant ulcer, left groin	Malignancy	Radium therapy; returned home for treatment	Death, 5 months; abdominal lymph nodes involved. Ascites

pared to a duration of ten months in the group of patients who had had squamous-cell epitheliomas.

Other features of melano-epithelioma were early and frequent metastasis to lungs and liver, and the short period patients survived after discovery of the lesion. Treatment usually consisted of wide excision of the lesion and radiation therapy applied to the perineum and to other areas to which metastasis might be expected. All the patients except one died within a few months.

An illustrative case—The exception was a white woman 52 years old who came to the clinic on August 25, 1936, to have a recurrent ventral hernia repaired. There was nothing in the history that indicated anal disease, but during the patient's convalescence from the herniorrhaphy a small anal tag became irritated. This was excised; microscopic examination proved that it was a melano-epithelioma (Figure 3*a*). The wound healed and there appeared to be no need for further therapy. The last report of the patient came from her family physician on January 7, 1946, at which time she was alive and well and there had been no indication of recurrence.

BASAL-CELL EPITHELIOMA OF THE ANUS AND ANAL CANAL

Of the 136 anal epitheliomas considered in this study, only 2 (1.5 per cent) were of the basal-cell type. These lesions occurred in male patients 50 and 53 years old, respectively. Both gave long histories of symptoms referable to the anus. Tumors had developed low in the anal canal in both instances; no evidence of metastasis was found in either case.

Two illustrative cases—In the first case, basal-cell epithelioma of the anal canal was discovered in a white man 50 years old who came to the clinic on February 9, 1943. He complained of protruding hemorrhoids of eight years' duration and said that rectal bleeding of moderate severity had occurred for four years. Rectal examination disclosed small internal and external hemorrhoids and an area of dermatitis on the right wall of the anal canal, with a small underlying indurated process which was thought to be a subacute abscess. Treatment consisted of wide excision of the diseased portion. Microscopic study of the specimen revealed a basal-cell epithelioma. A course of radium

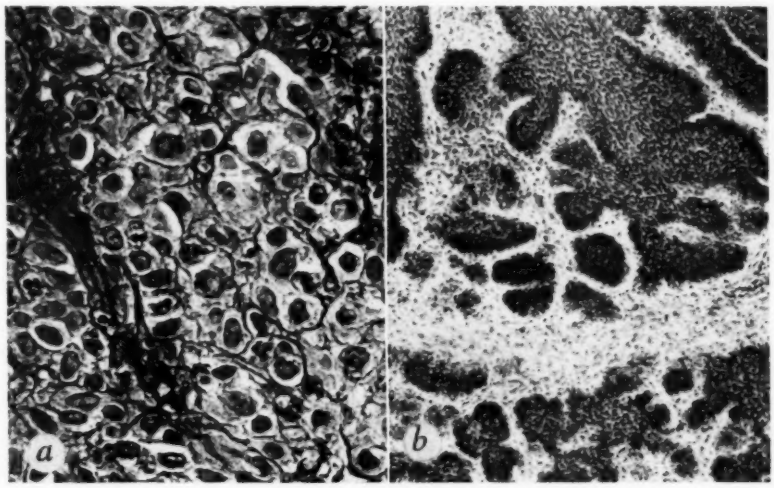

FIGURE 3*a*. Melano-epithelioma of the anus (x 450); *b*, basal-cell epithelioma of the anus (x 100). Both sections stained with hematoxylin and eosin.

therapy was given. The wound healed completely, although slowly. The patient was last examined on July 31, 1945, at which time there was no evidence of recurrence.

The second patient was a white man 53 years old who came to the clinic on April 21, 1944, complaining of anal trouble of seven years' duration. At various times from 1937 to 1940 he had been treated for pruritus ani by roentgen rays and by cautery. After the cautery treatment an anal ulcer had formed which did not heal, and it had been excised in 1942. The wound had healed slowly, soreness had persisted, and at the time of the patient's admission to the clinic an ulcer had been discovered.

Examination disclosed actinodermatitis over both gluteal surfaces and an indurated ulcer, 3 by 1.5 cm., at the posterior margin of the anus. Microscopic examination of a specimen taken from the ulcer disclosed inflammation, epithelial hyperplasia, and leukoplakia. The ulcer was widely excised. Microscopic examination of the specimen revealed a basal-cell epithelioma (Figure 3*b*). A course of radium therapy was administered. The patient's convalescence was uneventful. He was examined on August 27, 1944, and the wound was healed but the family physician reported June 8, 1945, that there was a small area of induration in the anus. The patient had no symptoms and refused further examination and treatment.

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Diagnostic Clinic

Diagnosis and Treatment of Infectious Hepatitis

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The importance of infectious hepatitis is indicated by the great number of cases reported by the U.S. Army during World War II, and the voluminous literature on the subject—the latter being the product of research workers and clinicians. In addition, public health officers have made valuable contributions to our ever-increasing store of knowledge.

I would define infectious hepatitis as an inflammation of the liver caused by filtrable virus. It has been established that in this disease there is both an infectious and homologous serum type. Clinically it is impossible to distinguish between them.[1] Investigators both in this country and abroad have been unable to identify any causative agent although the infectious variety could be transmitted by fecal extracts; this was not possible in the homologous serum type. However, a recent publication[2] brings out the evidence that both infectious and homologous serum types are transmissible to humans by the parenteral injection of human serum. In the former type, the incubation period is twenty to forty days, while in the latter type, it is forty to one hundred and sixty days.

Infectious hepatitis is an intrahepatic condition and a very definite public health problem. This will be exemplified by inclusion of work now being performed in our Division of Communicable Diseases under its able chief, Dr. Angelo M. Perri. I stress the fact that it is a condition in which teamwork between the private physician and the public health officer is essential; suspicious cases should be reported immediately.

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Presented November 2, 1949, before the meeting of the Interstate Postgraduate Medical Association of North America, Philadelphia, Pennsylvania.

HISTORICAL DATA

Infectious hepatitis was first recognized by William Stokes of Dublin in 1839. He stated that it was due to a mild form of jaundice. It has long been known in both civilian and military life. In Napoleon's campaign in Africa, the Civil War, the Boer War in South Africa, and in World Wars I and II, epidemics are recorded of what may probably have been this disease.

During World War I considerable effort was made to demonstrate an etiologic association between various strains of Salmonellae and infectious hepatitis. It is now apparent that such an association probably represented the simultaneous occurrence of two diseases whose manner of spread, namely the intestinal-oral route, was the same. In addition, the recognition of spirochetal jaundice and of its causative agent, Leptospira icterohaemorrhagiae, caused confusion in that for many years investigations of outbreaks of infectious jaundice were carried out largely with the concept of leptospiral etiology.

A series of 228 cases of leptospiral infections reported in the United States literature has been well reviewed by Molner, Meyer, and Raskin.[3] The disease is universal in its geographic distribution.

PATHOLOGY

Pathologically, lesions of acute infectious hepatitis are characterized by degeneration in the

parenchymatous cells and round cell infiltration in the periportal spaces, marked inflammatory response, and lack of regeneration. Studies on biopsy specimens of the liver have shown that the essential lesions are those of hepatic cell necrosis and autolysis, associated with leukocytic and histiocytic reaction. These changes begin in the center of the lobule and are most marked in the portal tracts. Severe liver damage is present in even the mildest case. Many seem to approach acute liver necrosis but still later enjoy complete recovery.

It must be emphasized that liver biopsy is attended with the grave risk of uncontrollable hemorrhage and death and is justifiable only under exceptional circumstances. Grossly the livers examined by Lucke and Mallory were soft and flabby, without nodules or hypertrophy.[4]

RUFUS S. REEVES

LABORATORY STUDIES

Laboratory studies are especially vital in cases of infectious hepatitis. In urine one finds bile and bile pigment—the bilirubin appears about the end of the first week, as does urobilinogen. While these cases are convalescing, bilirubinuria disappears first and serum bilirubin declines later.

Icteric index values may range from as low as 10 to 180, returning to normal after seven to fifty-eight days.

Blood—Leukopenia, with lymphopenia and neutropenia, is evident in the early stages of the disease. Later, relative lymphocytosis with atypical lymphocytes, resembling those found in infectious mononucleosis, makes its appearance. In severe cases, blood changes indicative of secondary anemia may develop. The coagulation time, erythrocyte fragility test, sedimentation rate, and prothrombin time frequently are within normal limits. There are no specific serologic tests of practical diagnostic value.

Blood proteins—There is an increase in serum globulin with a fall in serum albumin.

Liver function tests—The purpose of these is twofold. First, to assist in the clinical recognition of infectious hepatitis in the preicteric phase and second, to ascertain the duration of liver injury in convalescence. The merits of various tests have been exhaustively studied, but no single one has satisfied all requirements. Among tests used have been the cephalin cholesterol flocculation, the hippuric acid excretion, the galactose tolerance, the bromsulfalein, bilirubin excretion, proteins, and the serum thymol turbidity reaction.

SYMPTOMS

Clinically, cases of acute infectious hepatitis show loss of appetite, malaise, weakness, vague abdominal discomfort, body pains and aching, with a temperature seldom exceeding 103° F. Some patients vomit or have diarrhea. History brings out the fact of exposure about thirty days previously. These preicteric symptoms persist for about a week, when jaundice develops.

Physically, there is a slight enlargement of the liver which may also be tender. Icterus is seen first in the sclerae and progresses over the body, lasting two to five weeks in mild cases and eight to twelve weeks in more severe cases. During this period anorexia—especially for fatty foods, nausea, vomiting, heartburn, and pruritus are accentuated. Prolonged and intense icterus is a bad prognostic sign; such cases may develop mental depression, confusional states, cerebral symptoms, vomiting, and ascites before death. During the course of the disease with the presence of icterus one sees clay-colored

stools, bile in the urine, with transient albuminuria and glycosuria. The mortality is less than 4 per 1,000 in adults.

Relapses are infrequent and chronic hepatitis is rare. Recovery is invariably complete and there are no data to suggest that persons who have had infectious hepatitis are more liable to develop liver cirrhosis in later years. In children, infectious hepatitis pursues a mild course, and icterus is seldom prolonged. There is evidence that in some countries, e.g., Palestine, the immunity of the adult population is derived from infection acquired in early childhood.

Infectious hepatitis may occur either sporadically or in large or small epidemics.

DIAGNOSIS

Of general diagnostic value is a history of other cases of the disease in the family or neighborhood or a history of exposure to blood or blood products parenterally. In this regard transfusions, plasma, convalescent serum, or any type of hypodermic injection in the previous four months is a possible source of infection.[5] At the same time, it is desirable to rule out exposure to such common substances as carbon tetrachloride, chloroform, arsenic, and various commercial solvents. Although such exposure may constitute the sole cause of an acute hepatitis, it may also act as a secondary aggravating factor in what is primarily an infectious hepatitis.

The diagnosis of infectious hepatitis in the prodromal stage is infrequently more than presumptive. The symptomatology cannot be clearly distinguished from that of other acute febrile illnesses. Furthermore, the presence of fever introduces the possibility of transitory secondary hepatic changes which diminish the significance of liver function tests. The characteristic feature of infectious hepatitis is that the distinctive physical and laboratory observations persist for some days after the abatement of fever and usually become more pronounced.

The disease should be suspected when anorexia and nausea with or without vomiting are prominent and persistent. Moderately severe headache, a few loose stools with excessive flatus, and distress in the right upper quadrant of the abdomen are also common and important symptoms. Although fever as high as 104° F. may be present for several days, shaking chills are seldom seen. In the homologous serum type of hepatitis and in about 10 per cent of cases of the epidemic type there is an insidious and relatively afebrile onset.

The more important physical and laboratory diagnostic observations are a large and tender liver, hyperbilirubinemia and bilirubinuria.

If other liver function tests are rather strongly positive, this fact is decidedly suggestive of primary hepatitis. The flocculation and the quantitative urine urobilinogen tests are the most helpful and practical in this respect. Moderate elevation of the latter, however, must be discounted in the presence of fever. It is ordinarily not practical to use the sulfobromophthalein sodium test at this point, although a moderate degree of dye retention is significant.

The diagnosis of infectious hepatitis in the acute icteric stage is relatively easy and is adequately discussed in all standard texts on the subject. Acute hepatitis without jaundice is, however, a relatively new concept. The diagnosis is based on the persistence of the prodromal observations after the subsidence of fever. Symptoms of decided lassitude, anorexia, mild looseness of stools, intestinal cramps, headache, and aching in the upper right quadrant of the abdomen and right lumbar region are present.

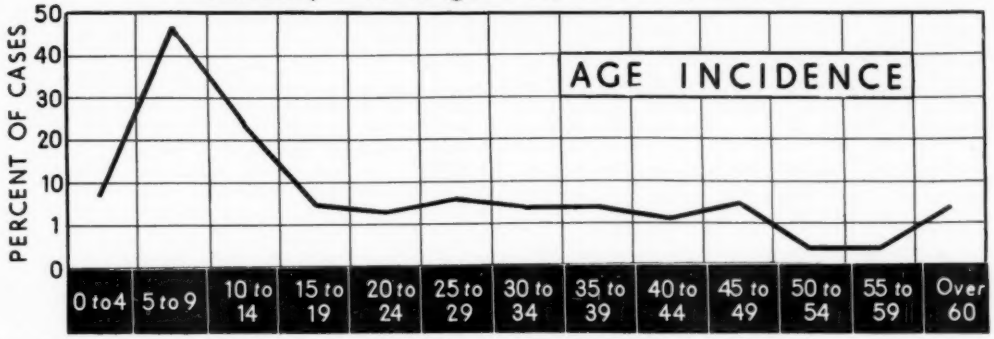
In the absence of fever, results of liver function tests have increased significance. Bilirubinemia, bilirubinuria, or moderate sulfobromophthalein sodium retention are diagnostic if present. However, the first two are often so transitory that they are missed. A positive flocculation test or quantitative urobilinogen determination associated with characteristic clinical observations is also adequate for diagnosis.

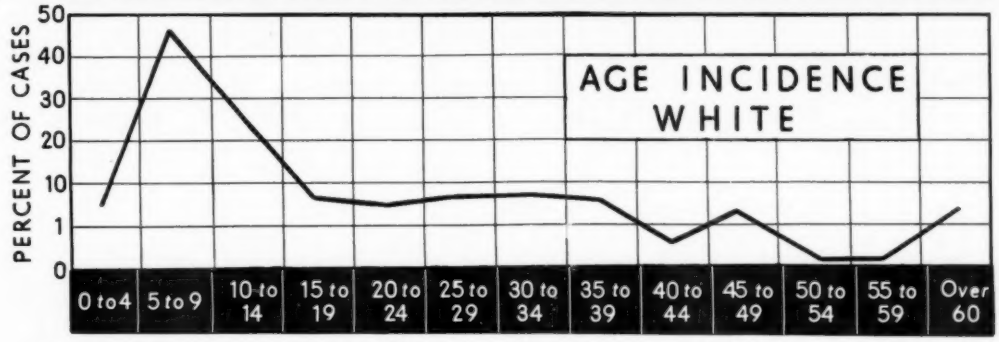
An important point in the history is the characteristic aggravation of the symptoms, especially the pain in the right upper quadrant of the abdomen, after physical exertion or jolting activities such as rough automobile rides. Patients that have been exercising and do not have an enlarged, tender liver do not have acute hepatitis. On the other hand, the physical examination of patients with acute infectious hepatitis who have been at rest in bed often reveals a normal liver.

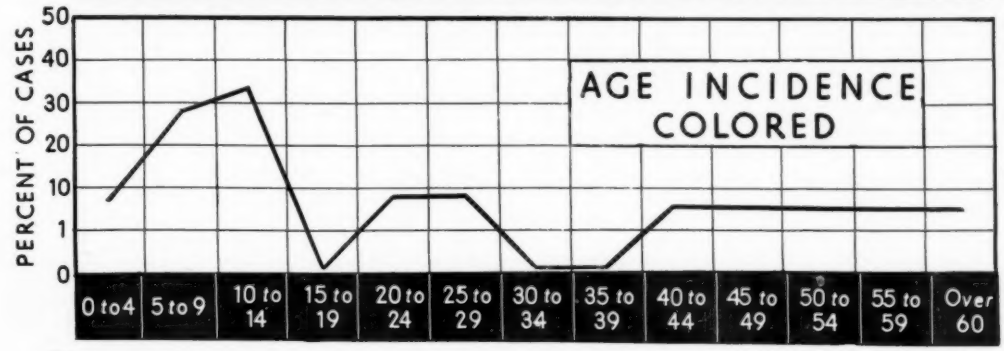
The following case reports were made available by the medical director and superintendent of the Philadelphia General Hospital, Dr. Pascal F. Lucchesi.

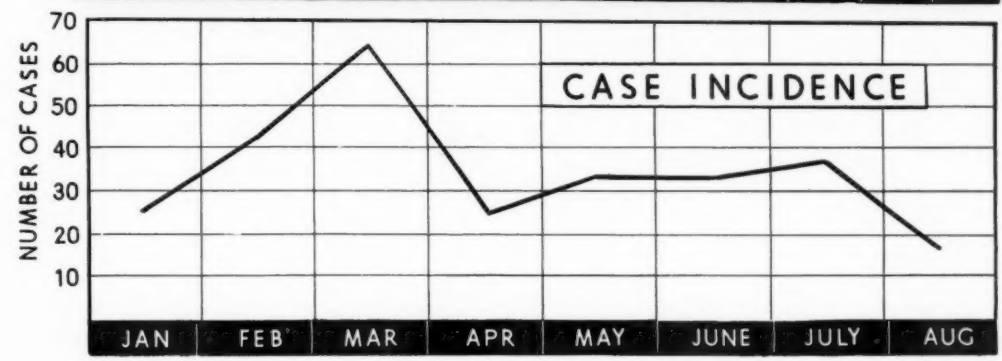
Acute Hepatitis

January 1 to August 31, 1949 inclusive









CASE REPORTS

Case 1—A 28-year-old Negro housewife entered the hospital on April 15, 1949, because of abdominal pain. Two weeks previously she developed diarrhea with 6 to 8 light brown stools a day; the diarrhea persisted until the day before admission. Ten days before admission she noticed the onset of considerable "indigestion," belching, and nausea which were aggravated by starchy and greasy foods. Nine days previously scleral icterus was noted, followed by passage of dark urine, and the night prior to admission she developed sharp right upper abdominal pain which radiated through to both lumbar regions and was aggravated by deep breathing.

She knew of no exposure to a jaundiced person, had never been jaundiced previously, had not been receiving any drugs or injections, and was previously very healthy. She was born and raised in Philadelphia.

Physical examination revealed a thin, icteric Negro female in no acute distress, with a normal blood pressure, a pulse rate of 85 beats per minute, a temperature of 103° F., and a respiratory rate of 22 per minute. Her sclerae were icteric; heart and lungs were normal. There was slight right upper abdominal tenderness; the liver and spleen were not palpable.

The urine was deep amber in color, acid, had a specific gravity of 1.020, and contained one plus albumin with 8 to 12 finely granular casts per high power field. The white blood count was 4,100 with 42 per cent polys, 40 per cent lymphocytes, 16 per cent monocytes, 1 per cent eosinophils, and 1 per cent basophils. Hemoglobin was 9.9 gm. per cent or 65 per cent of normal. Serum bilirubin was 9.37 mg. per cent with 5.0 mg. per cent in one minute form. Serum cholesterol total was 168 mg. per cent with 26 per cent esters. Total serum proteins were 6.2 gm. per cent with an albumin-globulin ratio of 3.8/2.4. The thymol and cephalin flocculations were not reported initially because of hemolysis; during the second hospital week their levels were: thymol turbidity 6.0 units, thymol flocculation 3 plus, and cephalin-cholesterol flocculation 3 plus. Alkaline phosphatase in the serum was not elevated. The prothrombin concentration of plasma was 51 per cent of normal. There was no sickling of red blood cells up to forty-eight hours of examination.

The patient was treated with absolute bed rest, intravenous glucose in water with added vitamins during the first twenty-four hours of hospitalization followed by administration of a high protein, high carbohydrate, and high vitamin diet supplemented with large doses of thiamine, niacin, ascorbic acid, and choline. She also received vitamin K initially. Her temperature, pulse, and respiration returned to normal on the fifth hospital day.

Subsequent studies revealed normal blood urea and sugar, negative chest x-ray, negative serology, slowly falling bilirubin in the serum until it reached a level of 1.61 mg. per cent by the fifth hospital week, and 1.23 mg. per cent at the time of discharge from the hospital. The total serum cholesterol level rose to 277 mg. per cent with 56 per cent esters; total serum protein remained essentially unchanged as did the serum globulin; at the third week the thymol turbidity was 3.7 units with a thymol flocculation of 1 plus and cephalin cholesterol flocculation of 2 plus, and after the fourth week they were all negative. The heterophile antibody titer was 1:28 (negative); bromsulfathalein excretion test (forty-five minutes) showed 21.5 per cent retention at the fifth week, and 5 per cent retention at the eighth week. The blood count returned to normal.

The patient was allowed out of bed at the end of the fifth hospital week. All liver tenderness disappeared by the end of the fourth hospital week. She was discharged from the hospital on June 21, 1949.

Case 2—A 19-year-old Negro female clerk entered the hospital on January 4, 1949, because of "yellow jaundice." Three weeks before admission she became ill with nausea, anorexia, and slight fever with "night sweats." Ingestion of food occasionally caused vomiting and she had become markedly constipated. One week before admission, dark urine was noted followed by mild generalized pruritus. She had a dull ache in the right upper abdominal quadrant. Jaundice was first noted the day of entry.

She had previously been perfectly well, had not been previously hospitalized, and had had no injections of any kind. She was born and raised in Philadelphia. She lived with an aunt who developed the same condition shortly before the patient did.

Physical examination revealed a well developed and well nourished female in no acute distress. Blood pressure was 100/60, temperature 98.6° F., pulse 100, and respirations 25 per minute. Sclerae and conjunctivae were icteric; lungs were clear; heart normal; abdomen slightly distended and slightly tender in the right upper quadrant with the liver just palpable below the costal margin. Pelvic examination revealed a retroverted uterus.

The urine contained bile and bile pigment, and gave a positive reaction for urobilin and urobilinogen; otherwise the urine was normal. Serum bilirubin total was 2.25 mg. per cent with 1.15 mg. at one minute bilirubin. Total serum proteins were 8.3 gm. per cent with an albumin-globulin ratio of 4.3/4.0. Thymol turbidity was 12.5 units with 4 plus flocculation; cephalin-cholesterol flocculation was also 4 plus; blood lymphocytes were somewhat increased; serum lipase and alkaline phosphatase were of normal concentration. Serologic studies were negative. Blood urea and sugar were normal; plasma prothrombin concentration was normal; serum cholesterol normal, and chest x-ray (PF) was negative. Heterophile antibody titer was 1:14 (negative).

She was placed on complete bed rest. A high protein and high carbohydrate diet and large doses of thiamine, niacin, brewer's yeast, crude liver extract, and choline chloride were given. She was allowed out of bed when the tenderness of the liver had disappeared and her appetite remained good.

Subsequent studies showed her twenty-four-hour urine urobilinogen to fall from an initial level of 10.94 Ehlick units to 2.56 and then to zero. Cholesterol esters were 83 per cent of a total of 199 mg. per cent; cephalin flocculation 2 plus and thymol turbidity 8.6 units with 4 plus thymol flocculation. She was discharged from the hospital on February 3, 1949.

Case 3—A 29-year-old Negro female maid was admitted to the hospital on August 9, 1949, with nausea. She had been in good health and working until the day of admission. The evening before she noted

passage of dark urine. On the day of admission she noted nausea with eating; upon consulting her physician she was noted to be jaundiced and was admitted to the hospital. She had no other symptoms. She was born and raised in Philadelphia. She knew of no exposure to a jaundiced person, was not taking any drugs, and had not received any injections in the past two years.

Physical examination revealed a thin, well developed female in no distress, with a blood pressure of 118/76, pulse of 84 beats per minute, temperature of 98.6° F., and respirations of 20 per minute. She had mild icterus; heart and lungs were normal; the liver was palpable 1 cm. below the costal margin and was slightly tender. Pelvic examination revealed no abnormalities other than a retroverted uterus. The urine was dark amber in color, acid, had a specific gravity of 1.027, and contained one plus albumin. White blood count was 8,550 with 56 per cent polys, 29 per cent lymphocytes, 11 per cent monocytes, 4 per cent eosinophils. Hemoglobin was 11.4 gm. per cent. Total serum bilirubin 4.99 mg. per cent; serum protein total 7.1 gm. per cent with an albumin-globulin ratio of 4.6/2.5; serum cholesterol 237 with 18 per cent esters. Thymol flocculation was 2 plus and thymol turbidity 7.1 units. Prothrombin concentration of plasma was 52 per cent of normal. Blood sugar and urea were normal. Chest x-ray normal (PF). Serologic studies were negative.

She was treated with a diet of at least 120 gm. protein, 120 gm. fat, and 600 gm. carbohydrate. In addition, she had added vitamin supplements. Her appetite promptly returned and she ate all the food offered to her. She was asymptomatic after the first hospital day, but was kept on absolute rest in bed until the end of the fourth hospital week.

Subsequent studies revealed the urine became completely normal. Urine and fecal urobilinogen studies were normal; the serum bilirubin became elevated to 16.2 mg. per cent and then declined; the prothrombin percentage increased to 65; cholesterol esters rose to 32 per cent of 206 mg. per cent; the serum protein was 7.8 gm. per cent with an albumin-globulin ratio of 4.9/2.9; the heterophile antibody titer was 1:14 dil. At the time of discharge on September 15, 1949, the bromsulfathalein excretion test showed 7 per cent retention.

In the treatment of cases of infectious hepatitis the important factors are prolonged rest in bed and an adequate diet. Early in the disease, 3,000 cc. of fluid in the first twenty-four hours are indicated unless prevented by nausea and vomiting, in which case it is given parenterally in infusions of 10 per cent glucose in water or 5 per cent glucose in normal saline. In the severely ill patients, plasma or blood transfusions may be beneficial.

Wilson and associates[6] reported beneficial results from the use of the amino acid cysteine—2 gm. orally in solution twice daily.

The diet should be high in carbohydrates and protein—low in fat. Supplementing it, the patient should be given liberal doses of thiamine, niacin, ascorbic acid, and choline chloride.

For completeness it must be stated that Neefe[7] observed 4 cases of chronic hepatitis without jaundice following attacks of infectious hepatitis with jaundice.

I wish to call to your attention a survey which was begun February 7, 1949 under the direction of Dr. Angelo M. Perri, chief of the division of communicable disease. The survey was the result of the reporting of 24 cases of infectious hepatitis in children from 2 schools. Every home was visited by a public health nurse. In one section 5,320 families with 20,418 individuals were visited; 103 persons were found to have had some possible symptoms of infectious hepatitis.

In another area 1,073 families having 3,124 individuals were checked and 72 persons showed some manifestations. In another section, 810 families with 3,240 individuals were checked and 21 persons showed some signs of possible infectious hepatitis.

From a preventive viewpoint in this survey, we suggested to the physicians that they supply gamma globulin—0.5 cc. per pound of body weight.

In 1948 we had reported 61 cases and 13 deaths. Including August 31, 1949 there have been reported by physicians and in our survey 267 cases with 8 deaths. Our fatality rate is 2.9 per cent. The majority of cases are found between the ages of 5 and 15.

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Diagnostic Clinic

Diagnosis and Treatment of Cerebral Aneurysm

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THE objectives of the diagnosis of cerebral aneurysm are, first, to avoid rupture and, second, to correct the cranial nerve palsies frequently associated with the disorder.

It has become apparent that intracranial aneurysm is often an operable condition, and as a result, greater attention has been given to its early diagnosis and quick recognition.

For purposes of clarity, I should like to spend a few moments on definition. It is absolutely essential in considering the type of aneurysm which I am going to discuss to make a clearcut distinction between the larger aneurysms, which I shall present, and the small miliary aneurysms which give rise to the picture of spontaneous subarachnoid hemorrhage. The latter constitute a problem in themselves and almost always are detected by evidences of rupture. They cause no localizing symptoms or signs, and they are associated with the clinical picture of spontaneous bleeding into the subarachnoid space. Since they cannot be detected prior to rupture by clinical or laboratory methods, they will not be considered here.

The aneurysms which I shall present are those which are capable of causing compression of the cranial nerves and adjacent brain structures. They are the large saccular and fusiform aneurysms which are distinguished from the miliary aneurysms only by size and the production of symptoms which are capable of leading to a diagnosis.

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Presented October 31, 1949, before the meeting of the Interstate Postgraduate Medical Association of North America, Philadelphia, Pennsylvania.

Saccular fusiform aneurysms tend to compress cranial nerve structures and adjacent brain structures; they also tend to rupture if not detected. Not all aneurysms rupture, but a great many of them do.

Most of these aneurysms are derived from the vessels of the circle of Willis, and at least 60 per cent of them are found in the anterior portion of the circle of Willis, for which reason they produce symptoms which are concerned largely with the cranial nerves in that area (Figure 1).

The diagnosis of cerebral aneurysm may be made under varying circumstances, since the problem does not always present itself in the same way. In most instances the history concerns head pain extending over a varying period of time, followed after a varying interval by evidence of cranial nerve palsies. The headache may be present for several years or only a few months. It is usually unilateral, intermittent, and, as a rule, of considerable severity. It is often felt behind or in the eye and is severe enough to require measures for its relief.

Apart from the fact that it is unilateral, intermittent, and often in the eye, the headache has no specific characteristics. Its frequency is unpredictable and its duration variable. The headaches in some instances may be those of typical migraine, and it is well known that in some cases of migraine, aneurysm may develop after a number of years of typical migraine headache.

The headaches in a typical instance are followed by evidence of involvement of one or more cranial nerves. The nerve involved varies with the site of the aneurysm, but since many cerebral aneurysms arise from the internal

carotid area, compression of the oculomotor and optic nerves is common. There may develop, therefore, ptosis of the eyelid, with external strabismus and impairment of upward, downward, and inward movement of the eyeball, when the oculomotor nerve is involved by pressure from an aneurysm of the internal carotid or posterior communicating artery. Scotoma, decreased vision, or loss of vision in one eye may develop from pressure on the optic nerve by internal carotid or anterior communicating artery aneurysms (Figures 2 and 3).

In some instances, complete ophthalmoplegia involving one eyeball may result from an internal carotid artery aneurysm involving the cavernous sinus, or from an arteriovenous aneurysm of this structure. Less frequently there develop diplopia and internal strabismus from external rectus paralysis due to a posterior communicating artery aneurysm, and difficulties in swallowing and hoarseness from aneurysm of the vertebral artery (Figure 4).

The cranial nerve palsies, regardless of their type, developing in the course of aneurysm usually appear against a background of headache of varying duration, but they may appear simultaneously with headache during the first episode of head pain. They usually persist, but it is not uncommon for them to recede completely. Thus a complete oculomotor paralysis may disappear completely, only to reappear during another episode of headache.

BERNARD J. ALPERS

While headache followed by cranial nerve palsies represents the usual story in cerebral aneurysm, it is by no means the only mode of onset. In some instances, but not frequently, the onset is painless, with the sudden appearance of oculomotor paralysis, transient blindness in one eye, or double vision. There is often a history of headache in the past in such cases, but this is not always the case and is frequently not significant.

The most dramatic mode of onset of aneurysm, of course, is that associated with symptoms of rupture. Sudden, excruciating headache announces the rupture of the aneurysm. It is persistent, and is followed in a relatively short time by loss of consciousness. Cranial nerve palsies may be found after the rupture has occurred. In cases signalized by onset with rupture there may have been a history of aneurysm which was not recognized, or there may have been no symptoms whatever to indicate the presence of aneurysm in the previous history. Rupture may have been the first symptom of its presence. This is more typical of the miliary type, but it is also found in the larger type of aneurysms.

The examination of a patient with aneurysm may reveal nothing or may disclose enough to establish the diagnosis without further study. In an instance with a history of headache and cranial nerve palsies, but with negative neurologic examination, diagnosis may be suspected but not established on neurologic survey. Examination made at the proper time will reveal cranial nerve involvement of various types—oculomotor paralysis, optic atrophy, visual field defects, hemiparesis, or hemiplegia, etc. The diagnosis may be made with relative certainty under these conditions if there has been a history as outlined. The diagnosis of a ruptured aneurysm is easily made by the presence of red blood cells in the spinal fluid.

Laboratory studies may offer some help in establishing the diagnosis. The spinal fluid is of little help except in cases of rupture. Occasionally a xanthochromic fluid is found, but otherwise there is nothing of significance. The spinal

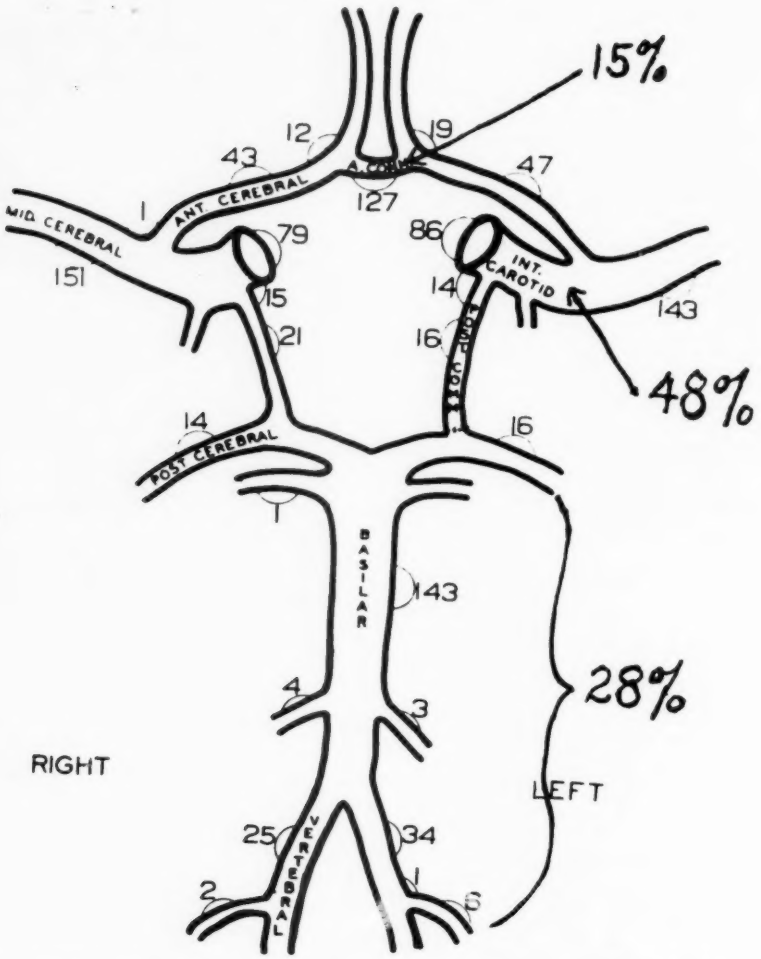

FIGURE 1. Location of intracranial aneurysms in 1,023 cases. (MacDonald & Korb.)

fluid pressure is normal; the total protein may or may not be increased; the Wassermann reaction is negative except in rare cases of aneurysm resulting from syphilis. In the last analysis, therefore, the spinal fluid gives little help in the establishment of a diagnosis except in the case of ruptured aneurysm.

Roentgen studies of the skull may be more significant than spinal fluid examination. Skull x-rays are often negative, but they may demonstrate changes which help in the diagnosis of aneurysm. These include local erosions of bone from pressure of the aneurysm, occurring most frequently around the sella turcica, the lesser wing of the sphenoid, and the petrous pyramids; calcifications of the aneurysm wall, which are not frequent, but their crescentic or rounded appearance may be quite characteristic; and calcifications of the internal carotid artery, which may be helpful in the diagnosis of fusiform aneurysm of this vessel. Other laboratory studies are of no significance.

The presence of endocarditis may help in the establishment of a diagnosis of mycotic aneurysm, but any source of emboli within the body may be significant for this diagnosis.

FIGURE 2. A large internal carotid artery aneurysm compressing the optic nerves and chiasm. There is hemorrhage in the subarachnoid space.

In rare instances aneurysms are associated with polycystic kidneys, and the demonstration of their presence is good supportive evidence of a suspected aneurysm.

Given a history of repeated episodes of unilateral headache, followed by or associated with cranial nerve palsies, with the demonstration of oculomotor paralysis, optic atrophy, visual field defect, hemiparesis or other neurologic signs, with evidence of local erosion or calcification in the skull, and with a normal spinal fluid, the diagnosis of cerebral aneurysm can be made correctly and in most instances will be verified. It can be made under similar circumstances without support from either roentgen or spinal fluid findings.

Characteristic as are the history and the findings, however, a verified aneurysm will not be disclosed in some instances, despite typical clinical features. For this reason, the presence of

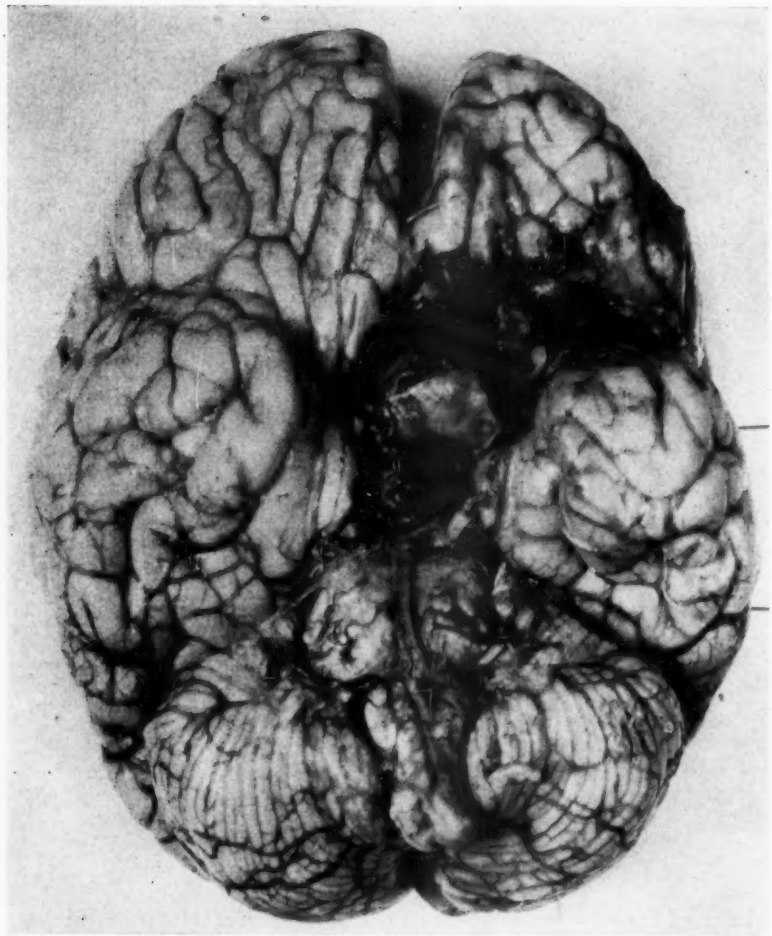

FIGURE 3. A large aneurysm of the internal carotid artery—covering the optic nerves and chiasm and the base of the brain to the pons.

cerebral aneurysm can be demonstrated with certainty only by means of arteriograms. Though these are usually accurate for the type of aneurysm under discussion, they are not always positive. Under rare circumstances the cerebral arteriogram may be normal in the presence of an aneurysm. For most aneurysms, injection into the internal carotid artery is sufficient to reveal the lesion, but for aneurysms of the posterior portion of the circle of Willis, injection of the vertebral artery is necessary.

THE purposes of treatment of cerebral aneurysm are (1) to prevent rupture, (2) to relieve headache, and (3) to relieve pressure. Though not all aneurysms rupture, it is safe to assume that an aneurysm will do so if left untouched. For this reason, steps should be taken to prevent rupture of the aneurysm by appropriate technics, once the diagnosis is made. This will insure survival in all cases except for the 15 per cent of instances of bilateral aneurysms.

Once cranial nerve palsies have developed, whether they are oculomotor paralyses or other types, operation cannot insure recovery from the paralysis. This may follow, but it does not in every case, as I shall demonstrate in one of the patients. Headaches, however, are usually controlled by operation of the aneurysm, but are not necessarily completely obliterated.

Let me present a few cases to illustrate some

FIGURE 4. A large aneurysm of the vertebral artery giving symptoms of a foramen magnum tumor.

of the points which I make, and to illustrate the typical histories and findings in these aneurysms. Once you become sensitized to them, the possibility of aneurysm is always raised in your mind, and the diagnosis, after a little experience, can be made with a good deal of certainty in most instances.

CASE REPORTS

The patient was 35 years old when she came into the hospital. She was admitted in April, 1948, and discharged from the Jefferson Hospital about five weeks later, in May, 1948. She was all right until about two weeks before admission, when she experienced a sudden, sharp, severe pain involving the left side of her nose. In the course of several days this pain radiated to the left frontal region and over the vertex to the occiput. It was constant, severe, throbbing; it was unrelieved by ordinary headache medi-

cines, and it was exaggerated by extension of the neck. It was entirely on her left side.

She was treated for sinusitis with nasal packs. During the three days prior to admission, she had pain around and behind the left eye as well, so that she had a typical history of aneurysm in the region of the internal carotid artery—unilateral pain in the head, in this instance the first episode, extremely acute without a previous background, associated with pain in the back of the eye. The pain in the back of the eye is not fortuitous by any means, because the studies of headache by Harold Wolff have demonstrated clearly that stimulation of the vessels in the region of the internal carotid artery will produce pain in back of the eye, and this history of pain in and behind the eyeball associated with internal carotid aneurysms is extremely characteristic.

Her headache was accompanied by nausea and loss of appetite. She remained that way, with her history of unilateral, left-sided headache with eye pains, until five days before she came into the hospital, when she found one day that she could not lift her left eyelid as well as the right. That gradually increased, so that the next morning her left eyelid had drooped even more, and two days before admission it was completely closed. She noticed double vision if she lifted the eyelid, but when the eye remained closed she had no difficulty at all.

Here is a typical story. This is characteristic and seen in a good many patients—a story of unilateral headache followed after a varying period of time by cranial nerve palsy of one sort or another, in her instance a third nerve palsy with ptosis of the eyelid and, as I will demonstrate on examination, impaired movement of the eyeball. Five days before she came in, she developed this cranial nerve palsy which occurred about a week or so after the onset of her headache. The interval of time after which the cranial nerve palsy may develop is extremely variable. It may develop immediately with the headache, it may develop several weeks or months after repeated headaches, and it may persist or disappear.

When she came to the hospital, neurologic examination revealed a complete ptosis of the left lid, a dilated pupil on the left which failed to react to light or accommodation, external strabismus with loss of upward, inward, and downward movement of the left eyeball, and diplopia in all fields. Apart from these findings, physical examination was negative. The Wassermann reaction was negative, the spinal fluid normal, the protein was 26 mg., and nothing abnormal was seen on conventional x-ray films.

She had an arteriogram performed, and it revealed an aneurysm of the left internal carotid artery.

At operation she was found to have an aneurysm connected with her internal carotid artery not only of this fusiform type, but she had an aneurysm about 6 or 7 mm. in diameter which compressed her left oculomotor nerve. Her common carotid artery was tied in the neck, and her only residual effect of this operation and of the whole episode is a little keloid in the scar, which is the only thing that bothers her at the present time. She has a little ptosis of her eyelid, a little impairment of downward movement, but not enough to give her any diplopia, and she has had an extremely good result. In this case we have accomplished both things, namely, prevention of rupture, and improvement in the cranial nerve palsy.

The next patient is a lady who had an aneurysm of the posterior communicating artery. She first noticed intermittent pain in the left side of the head above and in the left eye four years ago. Occasionally the pain extended into the upper portion of the left cheek, so that she had evidences of pain around the eye, but also face pain, which suggested the possibility of trigeminal involvement.

In May, 1946, about one month before she was first seen, she was awakened during the night by severe pain in the back of the head, predominantly left-sided and eventually extending forward to the forehead. The severe pain continued for three days and subsided gradually over a period of three weeks. At the end of this period she noticed slight drooping of the left eyelid, becoming complete over a period of three days and associated with outward deviation of the left eye, so that after a three-week period of headache she developed cranial nerve palsy.

Examination one month afterward (in June, 1946) revealed a ptosis of the left eyelid with limitation of upward, downward, and inward movement of the left eye, complete oculomotor paralysis. She had evidences of oculomotor palsy. With the history which she recited, she was regarded as having an aneurysm of the left posterior communicating artery. Eight days

FIGURE 5. Aneurysm of the right posterior communicating artery in a young girl of 18. Death followed rupture into the inferior horn of the lateral ventricle. (By permission of *Surgery, Gynecology & Obstetrics.*)

after examination, the oculomotor paralysis had completely disappeared. Despite this, she was operated on by Dr. Rudolph Jaeger, who found a small aneurysm arising from the left posterior communicating artery and compressing the left oculomotor nerve. The aneurysm was ligated and trapped intracranially and ligated at its neck. There was slight drooping of the left eyelid when she was last examined about a month ago. She has no residual.

The location of the aneurysm on the posterior communicating artery is shown in Figure 6. She has had trapping of the aneurysm, prevention of rupture, and complete recovery from the oculomotor paralysis. She had spontaneous recovery beforehand, and I should like to point out the fact that in some of these cases, despite the compression by the aneurysm, the cranial nerve palsy may recover completely before anything is done. In spite of the fact that her oculomotor paralysis had cleared up, it was felt advisable to proceed with operation in order to prevent rupture of the aneurysm.

This next lady, now 64 years of age, was well until April, 1945, when she awoke one morning to find that she had trouble in opening the right eyelid. The onset in this instance was painless, there was no previous history of headache, but, as I will indicate in going back over the story, some history of headache was obtained. Though some power remained in the right eyelid, she was aware at times of double vision. In the

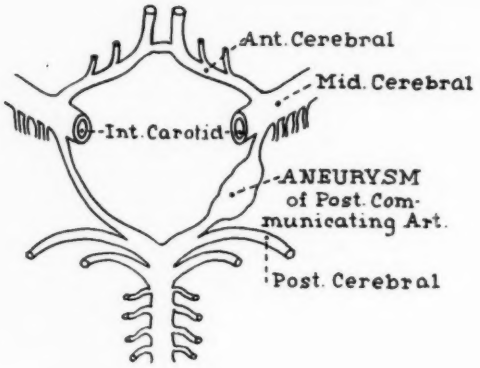

FIGURE 6. Aneurysm of the left posterior communicating artery.

course of two weeks her symptoms disappeared, after which she was well for two weeks when her ptosis recurred and remained unchanged at the time of admission.

Though the onset of her trouble was painless, about one month before she was examined she developed mild pains around the right eye and forehead. They were prominent at times and were felt deep in the orbit and extended to the side of the nose; they were most prominent in the back of her eye. She had a complete ptosis of the right eyelid with a complete ophthalmoplegia, no movement of the right eyeball at all, and loss of the right corneal reflex.

Laboratory studies were negative except for erosion of the right sphenoidal fissure, which is the only laboratory finding of any significance in this patient.

Because of the history of onset of the oculomotor paralysis and evidence of third, fourth, sixth, and first trigeminal branch involvement due to the loss of the corneal reflex, a diagnosis of cavernous sinus syndrome of the right side due to cerebral aneurysm was made.

She was operated on by Dr. Rudolph Jaeger five months after onset of symptoms. She was found to have a fusiform aneurysm of the right internal carotid artery which was arteriosclerotic and about three times its normal size, compressing the structures in question. Since it was impossible to trap the aneurysm, the carotid artery was ligated in the neck.

In order to make this presentation realistic I want to demonstrate a patient in whom the results were not entirely good. She has ptosis of her eyelids and she has some return of movement of her eyeball, which I shall not attempt to demonstrate because you cannot see it from your seats, but one thing we have accomplished in this lady is that we have at least eliminated the possibility of rupture of the aneurysm. I wish I could tell you that the little headache that she had has completely disappeared. It has not. You still have headache, don't you?

PATIENT: Once in a while.

DR. ALPERS: She has headache occasionally, sometimes severe enough to give her some concern and to make her family concerned.

I do not want you to go away with the impression that if you diagnose aneurysm and have it trapped in one way or another by carotid ligation or by trapping the neck of the aneurysm that that is the end of the story. Sometimes cranial nerve palsies persist and sometimes headache persists, but it is never as severe as it was beforehand and it usually disappears. However, as in this instance, if you can give assurance that rupture of the aneurysm has been prevented, much will have been accomplished, even though there has not been complete symptomatic relief. Our experience has shown that relatively few patients object to the ptosis when they realize that they have exchanged the ptosis for complete reassurance against disaster.

Diagnostic Clinic

Psychiatric Problems in Medicine

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My discussion will be presented under four general divisions: (1) introductory remarks about the relation of psychiatry to medicine, and the importance of the personal factor, freedom, and individual responsibility in the doctor-patient relationship; (2) a presentation and brief discussion of 2 cases; (3) a discussion of how modern psychiatry views the structure and dynamics of emotional disorganization, which is the illness in many cases from the point of view of psychiatry, and (4) a brief outline of practical psychotherapy—how one goes about meeting and treating such conditions.

The achievements in American medicine rest on two foundations: (1) the work of specialists and research men, and (2) that of general practitioners. This latter represents, of course, a much broader base.

The function of the general practitioner has not been merely the prescription and administration of medicine and drugs, but also the maintenance of the personal relationship between doctor and patient. The general practitioner has been not only physician, but also counselor and friend of the patient. With the successful practitioner there has always been a high degree of individualization in this relationship. Psychiatry in the greatest number of cases requires that kind of personalism in the treatment of patients. Psychoanalysis is the highest development of this individualization and personalism.

In this reciprocal relationship between the general practitioner and his patient, two processes or factors have been at work, namely freedom and responsibility: (1) freedom on the part of the patient to choose the doctor; (2) freedom on the part of the doctor to accept the patient; (3) the responsibility of the doctor for the patient; (4) the responsibility of the patient in the form of recompense. Wherever totalitarianism has prevailed, this relationship so essential to the usual practice of medicine has been destroyed, and the patient has tended to become a statistical unit to be treated mechanically and too often by mass methods. Psychoanalysis, for example, practically disappeared in Germany and Russia, and yet from the theoretical point of view psychoanalysis is one of the most important research methods in psychiatry; from the point of view of research it is more important really than therapy.

In the United States at the present time we see forces at work which mean the destruction of these factors of freedom and responsibility which are the essential elements of personal relationships, which, as we have stated, are so very important in medicine. We *have* state medicine in our public, state, and municipal hospitals, and here the patient to a great extent loses his individuality and becomes a unit in a mass of patients. Society in general has this problem to solve, namely the balance of freedom and responsibility and the values of freedom and responsibility versus the increased desire for security which is so extensive in our country. With this increased desire for security goes a diminution of freedom and responsibility.

If we have increased tendencies toward socialized medicine—and no one would deny the need and desirability for increased medical facilities for large segments of our population—we must bear in mind the dangers just indicated and strive to preserve the values of personal relationships, individualization, freedom, and responsibility. Psychiatry sees this as especially important, for much of its work and much of its insight comes from and rests on these foundations.

Medicine only now is coming to realize the greater importance of emotional or psychogenic

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factors, environmental and experimental influences which operate to a greater or lesser degree in all medical conditions. And at that very time these factors are being recognized, they are threatened with destruction by providing insufficient time with the individual patient for the development of personal rapport and mutual trust.

Psychiatry has reached the stage where it is no longer satisfied with (1) expectant treatment, and (2) custodial care. It is interested in the patient's individual reactions, personality, experience, feelings, and emotions.

Proceeding from this point of view, there is increased consideration of experience and environment in the development of psychiatric or emotional conditions. It would be very helpful if instead of using the word "psychiatric" we substituted the word "emotional" whenever we wanted to use it or when we see it in writings. Many discussions would be more clearly understood if we made this substitution in thinking.

Correlated with this, psychiatry has gotten away not only from mass methods and expectant treatment, but also from concepts of fatality and heredity. Psychiatry has become a matter of understanding, treatment, and in many cases cure. Throughout all psychiatry there is a spirit, at the present time, of hopefulness which has not existed before. Psychiatry has broadened its base in recognizing the etiologic significance of the emotional and environmental factors not only in the usual psychiatric conditions but in medical illness generally. Emotional factors often are important in the susceptibility or precipitation of medical disease and in the prolongation of convalescence. Such a view of psychiatry has opened new possibilities of prevention, so that all progressive psychiatrists are interested in preventive psychiatry.

Just as general medicine fifty years ago thought that the length of life and the height of people were fixed by heredity, and just as the life span and height of people have increased generally by the diffusion of more adequate health measures and practices by the general practitioner, so psychiatry now tackles conditions formerly thought fixed by heredity and finds many amenable to cure, even that dread condition schizophrenia or dementia praecox. We believe prevention in this field has unlimited possibilities.

There is no use of a longer life if it is to be wretched and miserable. Psychiatry can contribute to making life not only more healthful but richer and happier.

If there are close to 200,000 physicians in this country and only 5,000 psychiatrists, it means that general practitioners have to become general practitioners of psychiatry too and take their share in dealing with the emotional factors entering into illness.

Now may I present a case which illustrates the approach of the psychiatrist to, in this instance, medical conditions. A 30-year-old single female was sent to the University Hospital because of sharp intermittent pain in the epigastrium radiating to the axilla. There was considerable loss of weight. She had a long-standing surgical history: an appendectomy in 1931 for chronic appendicitis; a cholecystectomy later; a laparotomy to free adhesions; subtotal gastrectomy; a diagnostic curettage which was negative. Although these procedures were done for diagnosis and therapy, the patient continued to have the same vague gastrointestinal symptoms, with loss of weight and pain associated with the intake of food.

She was referred from the medical service to

the functional clinic of the University Hospital (we call it functional rather than psychiatric clinic) for psychiatric or emotional evaluation.

After the initial interview, the patient asked to return for therapy, saying, "I have tried everything else and nothing has helped, and you seem so patient." (This happened to be Dr. DeCherney, to whom I am indebted for the description and use of this case.) That is a very significant remark; the patient had a feeling that someone else was interested, that someone else was considerate, that someone else was patient with this medical condition.

For a number of interviews she continued to talk of physical complaints and showed little interest in her environment or social contacts. Then she began talking about herself. She was the next youngest of 8 children and received very little attention and affection as a child. Her emotional isolation and rejection were enhanced by her father's cerebral hemorrhage, which required increased attention from her mother for six months before his death. A younger sibling had multiple fractures from hypoparathyroidism, requiring constant care and attention from her mother. She had to work hard all her life. She was never able to take things easily, and developed insomnia. The other children, she felt, had gotten more of what they wanted than she had. When her relatives and her family needed help she gave it to them. When she needed help it was not forthcoming.

"But," she said, "things have changed since I have been in this hospital and since I have been seeing you. They have been very attentive. Maybe I don't want to get well, maybe I want to stay sick." That represented a tremendous progress in her emotional state and in her intellectual orientation. She learned to recognize that emotional factors were important in her life and in her condition. It became evident that she was using her illness, as we say, "to satisfy her emotional needs." Her illness was an expression of emotional strivings, namely the need for attention, consideration, and affection, which she had not received as a child. It was, in part, an emotional hangover or deficit from childhood. The frustrated need for dependency and affection came from her childhood experiences. The symptoms also satisfied a need to punish herself for guilt feelings about certain thoughts she felt were unusual, evil, and abnormal.

Remember, this all started as a medical condition; the chief complaints were medical and she had had medical and surgical therapy for a period of many years.

The patient was permitted to express her feelings without criticism. She was given reassurance that her thoughts were not unusual or abnormal. She was discharged from the hospital much improved, with renewed interest in life, increased understanding, increased self-respect, and a desire to work and improve her social relations.

Emotions are important in many medical conditions—though, of course, not in all of them. A woman of 35 was disabled with pain in the back and asthenia for eight years. She had two operations and had worn a brace for months. She had been a bed patient for one and a half years. Physical and laboratory studies were negative. The usual medical and orthopedic procedures were of no avail. She was seen in interviews of thirty minutes each, five times a week. The physician was passive, restrained, and nonassertive in his interviews. The patient was encouraged to talk of anything that came to mind, to express herself freely. Questions were asked to bring out relevant points. Direction, reassurance, and suggestion were given as sparingly as possible. Since these are the things we are spontaneously most inclined to give patients, we have to be very restrained in our use of them, if we are to practice effective therapy.

Gradually over the course of months, emotions of anger and resentment came to the fore in unusual proportions. They were often expressed violently. There were even acts of minor destructiveness to her immediate environment. It became clear that the emotions of resentment and hate toward a rejecting, neglecting, and faithless father, and to a driving, restricting, rigid mother in childhood, restrained and repressed over the course of years, and hostility toward her husband, had permeated into her very being and her bodily system, and with these tensions had caused her pains and weakness.

With the release of these emotions by talking, by verbalization, by gesture, even by dramatic and irritating expression, the weakness and pain disappeared and health was restored, and she returned to a normal life.

How does the psychiatrist view all this? He thinks of man as a biologic organism, but man considered merely as a system of organs or a series of systems functioning according to chemi-

cal and physiologic principles leaves out of account certain factors of organization and integration that must be considered if we are to understand behavior more adequately, and particularly psychosomatic conditions. There are certain drives or urges which appear as functions of the total organism, functioning as a unit, not as a function of any particular isolated set of organs or systems.

These forces which drive and motivate us, subjectively perceived, are the emotions. The three great emotions, the feelings that drive people, are feelings of love or dependency, hate, and fear. The life of the individual personality consists in expressing and satisfying these urges or forces in accordance with one's social training or condition. Conflicts between the instinctive and emotional forces and the social forces produce stresses or tensions. The expression of these tensions, whether in the physiology, the thought processes, or in overt social behavior, is the province of psychiatric study.

If the chief sources of tensions are conflicts between the feelings and social training, then these tensions arise automatically, involuntarily, or unconsciously, as we say. If you substitute the word "involuntary" or "automatic" when you read of "unconscious" things it will become clearer to you. These tensions arise automatically, involuntarily, and unconsciously as the result of organization of forces within an individual. Thus the tensions or symptoms are not deliberately willed by our conscious reasoning. Therefore, the area of responsibility is markedly limited, and blaming the patient or even reasoning with him much, and certainly arguing with him, have little effect therapeutically. The area of primary disturbance is not in the intellect and ideas, but in the feelings.

Walter Cannon formed the bridge between physiology, medicine, and psychiatry. He showed that emotions disturbed the physiology in definite, measurable ways. Psychiatry is studying the effect not of transitory emotions alone, but the effect of intense, persistent, chronic emotions which disturb not only the physiologic homeostasis but the intellectual and behavioral equilibrium of the individual.

Intense emotions certainly produce symptoms, probably some medical disease, delay healing, prolong convalescence in medical conditions, and certainly cause well-defined psychiatric disorders. Feelings, emotions, drives, with their associated impulses, thoughts and fantasies, influence the function of the body in certain types of illness. The changes produced, the dysfunctions, are in a sense the disease. Thus psychiatry deals primarily with feelings which are tensions and energies seeking outlet.

One of the difficulties with psychiatry, one of its handicaps, is that emotions can cause the same symptoms and disorders as physical, medical, structural disease, as infection, tumor, trauma, or degenerative disease. At times the differential diagnosis is very difficult. Doctors have been trained to look for what they can see, touch, hear, weigh, and measure. They have often overlooked factors just as real—the feelings, desires, personal relationships, social feelings—which can be apprehended not by the five senses but by understanding. Thus, doctors often have attributed pains, weakness, heart discomforts, worry about ulcers, cancer, and brain tumors to the imagination rather than to the real cause in the stresses and pains and intensive emotions of the personality.

Benjamin Franklin said something that is very important in this regard: "Pain is pain and pleasure is pleasure, whether real or imaginary."

Fortunately the recent study of psychosomatic medicine is dissipating the conception of imagination as a supposed cause of many worries and illnesses by extending research into the ramification and conversion of emotion into physiologic disturbances.

Psychotherapy in the past has been chiefly expectant or custodial, interminable or exorbitant in time and money. Modern therapy is dynamic and often effective rather than expectant. It requires work with the individual patient and takes time. This is one of the difficulties of psychiatric treatment, but time is an important factor in conditioning, which lies at the source of psychiatric illness. If it takes fifteen, twenty, or thirty years of conditioning to produce a disability, it is not surprising that it requires weeks, months, or even several years of intensive conference and work with a patient to supply the corrective emotional experiences or reconditioning that constitutes psychiatric therapy. Conditioning requires time.

What are the essential factors in psychotherapy or the treatment of patients with conditions in which the differential diagnosis between organic factors and emotional factors is difficult and which we call psychosomatic? I do not like

the word *psychosomatic* because "psyche" seems to indicate that the trouble is in the realm of ideas and that all we have to do in psychotherapy is give the patient the right ideas. That is a complete misunderstanding. Even the word implies a complete misunderstanding of what the difficulties really are. They are not in the realm of the intellect and in the realm of ideas. They *are* in the realm of the feelings, the emotions, the basic instinctive emotional organization of the individual, and in the means by which they have been modified by the experiences of the individual. So psychiatric therapy, which all practitioners have to use at times, is not a transference or implantation of ideas from doctor to patient. It is helping the patient develop new attitudes toward life adjustments; it is helping him remove or diminish his malignant emotional tensions which are interfering with his adjustment; it is helping him find new outlets for his feelings; helping him develop new reactions. It is a process of deconditioning and reconditioning. It is a corrective emotional experience which requires time.

That means that psychotherapy (again I prefer the word "treatment") is not some of the things which it is often thought to be. It is not the implantation of ideas from one person into another; it is not an intellectual exercise; it is not merely the development of insight or understanding; it is not argument; it is not exhortation; it is not a lesson in morality; it is not a battle of wills; it is not an opportunity for the doctor with his superior wisdom to impose his ideas on the patient and thus increase his feeling of inferiority and oftentimes humiliation. You cannot help a person by making him humiliated and rarely even by making him mad. It is not an occasion for the doctor to express his anger at the patient because of the doctor's own frequent frustrations in treating such patients successfully.

PSYCHOTHERAPY or psychiatric therapy is an experience, and experience is broader than intellect. As such, it is a process of conditioning and growth, and like growth it goes on oftentimes nonintellectually and automatically. It is an automatic readjustment of the emotional and social forces which have been conflicting in the personality. Thus, psychotherapy—let's think of it as emotional therapy—is a social experience; it is a relationship with a doctor who wants to help a patient; it is an experience, not an intellectual exercise, in which the doctor's attitudes toward his patient are the most important levers of therapy.

The doctor should bear in mind certain needs of all people, of ourselves, of our patients, the need for new experiences, the need for change, the need for security, for attention, for consideration, the need for respect and a feeling of individuality, the need for responsiveness and understanding from another human being. All these things must seem to you almost absurd when one is considering indigestion or cardiac pain or colitis or this history of six operations which the patient had that I discussed with you. But it was not until the patient stumbled onto this doctor who understood the emotional factors in illness that further operations were not pursued uselessly.

How can we give security to an individual? We can give it by accepting the patient for treatment, by showing interest in his condition, by giving him support and protection which is implied by a plan of regular interviews, whether those interviews are three times a week for twenty minutes or a half hour, whether they are once a week, once in two weeks, or once a month. We can give security by laying out a plan and showing our interest in the patient, by not being critical, by not contradicting him, and by being patient and considerate even when the patient, as in the case I cited, was very irritating by exhibiting nothing but complaints and a reiteration of complaints for many interviews. But the purpose of those complaints was unconsciously an appeal for help. They showed a dependency need which had been frustrated early in childhood and somebody had to give that patient satisfaction of those needs or she would have continued to remain ill.

How do we give respect to a person? We can give respect to a person who we do not think is very high intellectually, socially, or even morally. We have to. We do this by affording the patient a feeling of individuality and worth. We can accept him for what he is, with all his annoyances and immaturities. The physician shows responsiveness to the patient and makes efforts to understand what forces are at work. These efforts to understand are often more important therapeutically than actual understanding, and the general practitioner can show these attitudes and thus help the emotional conditions in general medicine.

Diagnostic Clinic

Bilateral Laryngeal Paralysis

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I HAVE selected the subject of bilateral recurrent laryngeal paralysis because it is a condition that for several reasons I consider very important. It is very often overlooked, and not well understood by many physicians and surgeons. Furthermore, it is dangerous if not promptly diagnosed and properly treated. These patients are likely to become asphyxiated if given anesthesia, for example, without taking into consideration the condition from which they are suffering. During a respiratory infection they are likely to have enough additional obstruction of the airway to cause asphyxiation.

The commonest cause of bilateral recurrent laryngeal paralysis is trauma resulting from thyroidectomy, such as injury of the recurrent laryngeal nerves at operation, or involvement of those nerves in scar tissue after the operation. There are other causes. Some of the patients in our series had bilateral recurrent laryngeal paralysis as part of a central nervous system disease, 2 or 3 of them being luetic, and 2 arteriosclerotic.

The symptoms are very simple and easily recognized. Dyspnea and inspiratory stridor are the outstanding symptoms, and both vary in degree. Some patients are dyspneic only on exertion, climbing stairs, exerting themselves otherwise, and some are more or less dyspneic and have more or less stridor all the time.

The mechanics of these symptoms are very simple—the two vocal cords will not separate; they are not glued together, there is a little chink for the air to pull through, but they do not separate as in normal abduction (Figure 1).

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The simplest obvious treatment for this condition is tracheotomy. Very often that is necessary regardless of what other treatment is to be given. Tracheotomy lets the air in. If patients are fitted with a tracheotomic cannula with a valve in it, they can get along very well and very comfortably; they can talk quite well; they can get enough air. When they breathe in, the little valve opens and lets the air in; when they breathe out, the valve closes and forces air out through the mouth so that the voice is quite good. (The best valvular cannula is that devised by Gabriel Tucker.)

An operation called ventriculocordectomy was proposed for these cases, excising the ventricular floor, and thinning out the ventricular band and vocal cord by a direct endoscopic procedure, but that operation has been entirely abandoned for a number of years because it sacrificed voice completely, or almost completely, and because it was not productive of results, even as far as respiration was concerned in many of the cases.

The modern treatment used in the last eight or nine years has been some form of laryngoplasty. There are a number of different forms. I am going to speak of only one. The operation we have used is a simplified form of the operation first proposed by Dr. Brien King of Seattle. A number of other operators have devised similar technics based on the same principles.

In our own series we have had 38 cases operated by the Brien King technic, 34 of them post-thyroidectomy complications, 4 from other causes.

Brien King advised the attachment of the omohyoid muscle to the arytenoid cartilage after mobilizing the cricoid on one side, and anchoring the arytenoid cartilage over to the inner surface of the thyroid wing. We have dispensed with the use of the omohyoid muscle,

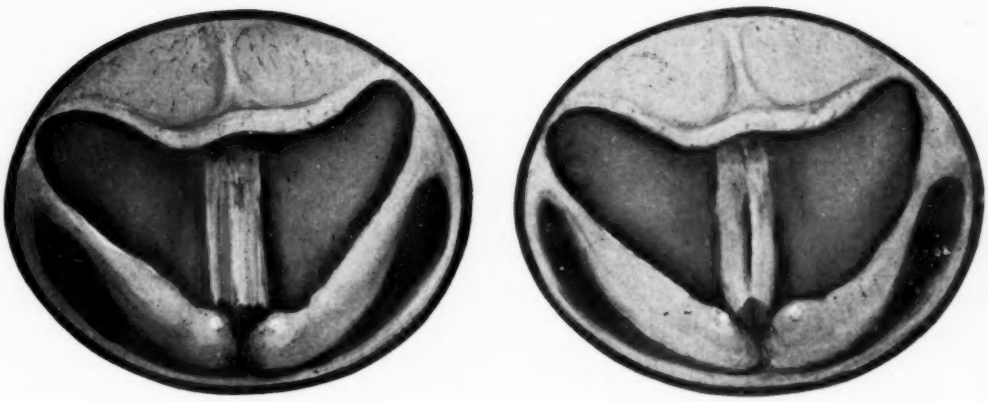

FIGURE 1. Indirect laryngoscopic views of bilateral laryngeal paralysis. At left is shown the appearance on inspiration, with the cords in almost complete apposition. At right the cords are seen to be slightly separated by the blowing of air through the almost closed glottis on expiration. From these pictures it is obvious that patients with bilateral laryngeal paralysis are in dire need of mechanical relief of their respiratory obstruction.

which does not seem an important or essential part of the operation. The mobilization of the crico-arytenoid joint, cutting the capsule, and making the arytenoid freely movable is important; so is the essential feature of the operation, which is anchoring the arytenoid over to the thyroid cartilage (Figure 2).

I SHOULD like to present 4 patients—all from the post-thyroidectomy group—who have been kind enough to come down here.

Case 1—The first patient is a man 47 years of age who came to us in February, 1947, complaining of dyspnea and noisy breathing. When he came into the office he was having extreme difficulty in breathing. He could not speak. His history was that right after his thyroid operation he could not speak above a whisper for several months; then his voice was better, but he began to have trouble breathing. That is the usual story. It means that one cord was paralyzed right after the operation and subsequently the other one became paralyzed. This man had been treated without proper diagnosis far too long, and he presented a beautiful example of the failure to realize the necessity, in these cases, for mechanical surgical treatment. He had been given inhalations of penicillin and all kinds of other treatment, but his cords remained almost tight together, so that he could not get enough air through.

We did a tracheotomy on February 15, 1947, and for several months he was so exhausted from his prolonged dyspnea and in such bad nervous condition that he didn't want another operation right away, so laryngoplasty was not done until May, 1947. The patient was decannulated a few months after that and has been quite comfortable since. I want him to come and say a word on the microphone. I might say, however, that this operation is not done primarily for voice. The voice varies a great deal in pitch and carrying power; some patients have very poor voice. The operation is done primarily for breathing and decannulation. Of course, we are glad to get as good a voice as we can. This man is a salesman and is still selling.

DR. JACKSON: Good morning. Are you still working?

PATIENT: Yes, I am.

DR. JACKSON: Can you talk on the telephone?

PATIENT: Yes, I can.

DR. JACKSON: He has a little stage fright now, but he gets along very well with his voice. It is not of perfect quality, being a little high pitched, but he is able to carry on his regular work fairly well. You have gained weight. How much did you gain after the first operation, do you remember?

PATIENT: About 30 pounds.

DR. JACKSON: I remember that very well. He came in just exhausted, worn out, and almost dead from asphyxia.

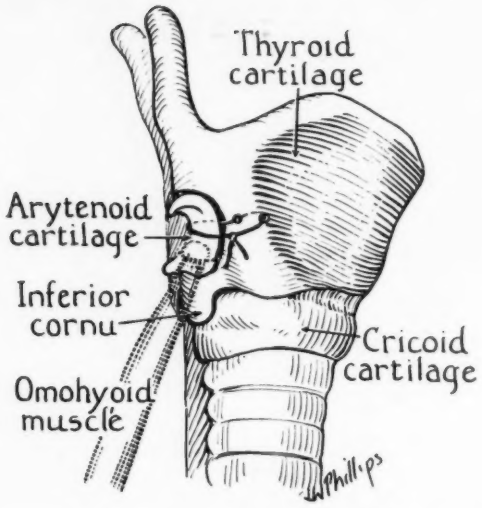

FIGURE 2. Schematic representation of the principle of the Brien King type of laryngoplasty. As a matter of fact, the omohyoid muscle transplant is no longer used by most surgeons and was not used by the author in any of his cases. The essential feature is cutting of the capsule of the crico-arytenoid joint and muscle attachments, and the "splinting stitch" to anchor the arytenoid over to the thyroid ala.

Case 2—The next patient is a lady 30 years of age who had had a thyroidectomy done about two years before we saw her. (I hope these ladies don't mind my giving their ages.) She came to us suffering from dyspnea and insomnia. Many patients with bilateral laryngeal paralysis have insomnia and that is related to the dyspnea; they can't get enough air to relax and sleep comfortably. This difficulty is noted especially during acute respiratory infections.

Tracheotomy was done December 29, 1945, and in June, 1946, a laryngoplasty was done. The tracheotomy was not closed until January 8. This lady has been kind enough to come down from Norristown to be with us, and she will say a few words. She gets along very nicely at home, but she hasn't a very strong voice.

DR. JACKSON: Where do you live?

PATIENT: Norristown, Pennsylvania.

DR. JACKSON: Do you have any trouble getting your breath?

PATIENT: When I climb stairs.

DR. JACKSON: But you sleep well?

PATIENT: Yes.

DR. JACKSON: Thank you very much.

Case 3—Next is a lady 44 years of age who came to us first in October, 1947. She has been wearing a tracheotomy tube since June of last year. She had had a thyroidectomy the previous November. Laryngoplasty was done on November 3, 1948, and in January she was decannulated. Will you say a few words?

PATIENT: Good morning.

DR. JACKSON: Have you been able to talk on the telephone?

PATIENT: Oh, yes, I can talk wonderfully now.

DR. JACKSON: Does the voice change?

PATIENT: Sometimes it gets louder, but mostly it is like this.

DR. JACKSON: Do you have any trouble getting your breath?

PATIENT: No.

DR. JACKSON: Do you sleep well?

PATIENT: Wonderfully.

DR. JACKSON: Thank you very much.

Case 4—Finally, the lady who has the best voice of the group didn't come until five minutes before we were ready to go on the stage, and I was afraid we weren't going to be able to finish up with her as I had planned. Even though I say voice is not of primary importance, it still is important, and so I am going to present this patient, 29 years of age, whom we saw first on January 7, 1946. She complained of hoarseness and shortness of breath ever since her thyroid operation in February, 1945. Immediately following the thyroidectomy she had loss of voice for a few days and then she regained some voice but developed difficulty in breathing.

We did a tracheotomy on this patient on March 14 and a laryngoplasty on May 26, 1946; on May 31 she was decannulated. She has had a baby since then. She had to take care of the baby this morning and that is the reason she was late. Now, you can go ahead and make as much of a speech as you like!

PATIENT: Good morning, everyone. I have an 8-year-old boy and I really need a voice for that. Since Dr. Jackson operated on me I have had a baby girl, who is now 2 years old, and I think it is just through his operation that I have been able to do this! I am quite pleased with it.

DR. JACKSON: I think anything else I could say now would be anticlimactic! I do think, however, that I should remind you once more that this is a dangerous condition, and far too generally overlooked or mistreated.

GENERAL PRACTICE *Review*

To provide the general practitioner, as well as the specialist with concise, readily available information on the latest, proved methods of treatment of conditions commonly encountered in an average practice, POSTGRADUATE MEDICINE *offers this department to its readers. It is not, of course, intended to present these discussions as the only acceptable therapeutic procedures to be used, but rather to offer simple regimens and recommendations based on the extensive experience of the physicians who prepared these summaries.*

The Management of Psoriasis

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THERE is no specific or entirely satisfactory treatment for psoriasis but enlightened and experienced management of the psoriatic patient keeps the disease somewhat under control and saves the patient from many troublesome and at times dangerous consequences of well intended but unproved remedies.

The following communication deals entirely with the author's personal impressions in treating psoriasis.

GENERAL CONSIDERATIONS

Some patients with psoriasis are improved by almost any type of treatment, but there is no one treatment which may be ordered with assurance of success. It is therefore misleading to present reports of satisfactory results based on a small number of cases observed only a few weeks. The new cures reported each year are based on too few cases observed over too short a time.

Psoriasis often is a cyclic disease in which spontaneous remissions and exacerbations of various lengths may occur. Experienced dermatologists know this and therefore are slow to praise or condemn a new treatment until it has been given a very thorough trial.

Psoriasis often shares in the bodily changes that are provoked by physiologic or pathologic conditions, thus pregnancy or diabetes or some other state may bring about profound changes in the degree of psoriatic involvement. This fact has suggested many treatments based on endocrines, vitamins, or chemicals. Since like changes may be produced by such diverse states no advances have come from these observations.

The age of the patient must have some bearing on both the onset and course of the disease, for its incidence is rare before puberty and the erythrodermic form is more common in advanced years; aside from these observations age in itself offers no solution to the problem.

All diseases which are characterized by high fever influence the course of psoriasis, in fact often cause it to disappear temporarily, but induced fever as a means of treatment has not been satisfactory nor is it feasible.

Strict rest in bed either at home or in the hospital induces certain physiologic changes which often are reflected in immediate improvement in the eruption of psoriasis and has been quoted as evidence of the psychosomatic importance in this disease.

Change in the body weight, especially if the change is sudden and marked, generally produces a change in psoriasis. People who are obese and suddenly lose considerable weight frequently notice an improvement in the eruption. This accounts, at least in part, for the benefit obtained from various reduction diets advocated for psoriasis. It is rare to see psoriasis in a thin person or one of normal weight improve when the patient is on a reduction diet. Here the reverse also holds true in that psoriatics who gain abnormal amounts of body weight

PSORIASIS

(Reproduced, by permission, from "Diagnosis and Treatment of Some Common Skin Disorders," published by Smith, Kline & French Laboratories.

often experience an aggravation of the eruption.

Season and climate certainly influence some cases of psoriasis while many are not influenced at all. Just about as many cases are aggravated in summer as are improved. This seems to be true of a change of climate. Sun bathing is beneficial in only about 50 per cent of cases. Geography must also be considered. Sojourn at the seaside was the treatment advocated for years in England. Spa treatments, however, have never become popular for psoriasis because of the uncertainty of the results. Neither salt water nor mineral water bathing gives consistent or even promising results.

Pregnancy and lactation must influence psoriasis in a rather large percentage of women. Some women show no change, but most psoriatic eruptions are greatly aggravated or greatly improved during and shortly after pregnancy. The change in psoriasis appears to be related to the length of time the mother nurses the baby. The longer the nursing period, the longer the psoriatic change persists.

Alcohol, if consumed in large quantities, almost always aggravates psoriasis. The itching is usually increased even when alcohol is taken in small amounts. Complete abstinence is to be recommended especially in patients who imbibe regularly and at times to excess.

That psoriasis is influenced by the emotions may be stated from observation, but it is hard to prove. There are undoubtedly exacerbations which coincide with some psychic disturbance in the patient's life but grave emotional upsets bring about such profound physiologic changes that it is impossible even to speculate on the mechanism.

Persistent, extending, and intractable psoriasis in itself is often the cause of severe psychic deviation. This is particularly noted in susceptible individuals who have been discouraged either by their own methods or by physicians. Psychic supportive treatment is imperative in such patients. Periods of alcoholism, depressions, and other frustrating manifestations may often be avoided by an optimistic resourceful therapist, and the curt dismissal that "You have psoriasis, I can't do anything for you" is just the final blow to precipitate a prolonged and difficult emotional seizure for some patients. Psoriasis can and must be managed and in a large percentage of patients can be kept within the limits of the patient's toleration.

These are just some of the many factors that appear to influence the course of psoriasis. The following outline of treatment must of necessity be vague and empiric, as well as possibly totally incorrect when the cause of psoriasis is determined.

INTERNAL TREATMENT

Patients who have psoriasis have been given about every type of nonspecific medication.

Arsenic in the form of Fowler's solution is one

of the oldest remedies and may be very dangerous. Patients in the past often took "drops" for years. Arsenical keratoses and skin cancers have resulted in many patients. I do not believe that arsenic is of value except in an occasional case of psoriasis. However, if Fowler's solution is used, a "No Refill" label must be ordered. If Fowler's solution is ordered the patient should not be told what he is taking.

Diets for psoriasis as for all skin diseases have been advocated since medical practice began. Schamberg[1] popularized a low protein diet and Grütz and Bürger[2] advocated a low fat diet. In my experience a reduction diet, regardless of its components, will generally help psoriasis only in obese patients. Diets of any type are of little or no value in psoriatics who are undernourished or whose body weight is normal.

All of the vitamins have been used with varying degrees of success. By and large vitamins are of no value but they are generally harmless. Large doses of vitamin D are the exception to this rule. One must be constantly on the alert for symptoms of hypercalcemia when vitamin D is given in order to avoid serious illness or even death.

The oral administration of undecylenic acid has recently been proposed for the treatment of psoriasis by Perlman.[3] I have treated 49 patients with undecylenic acid to date and have observed none of the favorable findings reported by Perlman. No patient has taken over 15 capsules (7.5 gm.) a day. The larger doses recommended later by Perlman[4] have not been used. Some means of preparation should be found to eliminate the necessity of patients' taking 45 capsules a day, even though they are willing, especially if they cannot be assured that the medication so taken will benefit the eruption. Some patients have been taking this amount by mouth more than four months.

Undecylenic acid did not stop itching, cause exfoliation of the scalp lesions, or improve the eruption. The usual reactions were minor, such as belching, nausea, diarrhea, a feeling of fullness in the abdomen, slight dizziness, and loss of appetite. In one instance a pustular eruption developed in all the lesions of a generalized psoriasis; it disappeared as soon as the undecylenic acid was stopped. Several psoriatics became much worse during the treatment, but when the undecylenic acid was discontinued the eruption usually became quiescent.

The details of this study will be published after the data on a larger number of cases is available, but my initial impression is that undecylenic acid is of no value in the treatment of psoriasis.

Liver extract, diluted hydrochloric acid, estrogenic substance, sulfanilamide, bismuth salicylate, anterior pituitary extract, adrenal cortex extract, pancreatic extract, autohemotherapy, soybean lecithin, sarsaparilla, and other internal medications have been used by the author with indifferent results.

EXTERNAL TREATMENT

Two entirely different types of external treatment should be used in psoriasis, (1) stimulating and exfoliating applications in the dormant or descending phase of the eruption, and (2) soothing applications in the ascending phase when new lesions are appearing. If strong local applications are used when new lesions are appearing, an exfoliative dermatitis or marked extension may result. The general aim is to have an effective local application that does not irritate and is cosmetically satisfactory and practical to use. No such remedy is yet available but some approximate our desires.

Most dermatologists agree that an ointment base is preferable to a lotion or paste. Some of the new water-absorbing bases may prove more satisfactory than petrolatum.

Salicylic acid has long been the scaling or exfoliating agent of choice. The percentage used depends upon many factors besides the thickness of the scale; namely the location of the lesion, the age of the patient, the presence of fissures, etc.

The drugs commonly applied are chrysarobin, sulfur, ammoniated mercury, resorcin, and crude coal tar or one of its derivatives. Chrysarobin is effective but objectionable for several reasons. It turns white hair yellow, produces severe conjunctivitis, and permanently stains linen. One must be constantly watching for a chrysarobin reaction around the psoriatic lesion itself. The disadvantages of chrysarobin outweigh its advantages as a local medication.

Sulfur applied over a long period, such as is usually necessary in psoriasis, may produce a dermatitis. Ammoniated mercury is potentially dangerous when applied to extensive areas because of the possibility of absorption and resultant mercury poisoning; however this is a very rare occurrence.

Crude coal tar is perhaps the most satisfactory local medication, but tar is dirty and ranks high as a photosensitizer. In my hands the various tar derivatives have never been as efficient as crude coal tar itself. I have not employed resorcin. Drew's ointment, Mook's ointment, etc., have merit and give one an added attack.

Physical therapy is valuable in the treatment of psoriasis. Ultraviolet light either alone or in combination with local applications is safe and often effective. Roentgen rays properly administered will cause the involution of many psoriatic lesions, but they should either be avoided entirely or used very cautiously by trained personnel because of the possibility of producing a roentgen dermatitis in a chronic, recurring disease such as psoriasis.

The most satisfactory local treatment, to my mind, is the combination of crude coal tar ointment and ultraviolet light popularized by Goeckerman[5] many years ago. Weiss[6] and his associates recently advocated substituting liquor carbonis de-

tergens for the tar ointment in this type of treatment. In my experience, liquor carbonis detergens caused the lesions to become dry, fissured, and uncomfortable; therefore this method of treatment was discarded.

TREATMENT OF SPECIAL TYPES AND LOCALIZATIONS OF PSORIASIS

Guttate psoriasis may appear as an acute disease with a generalized exanthem and must be treated with caution. Colloidal baths and plain petrolatum or boric acid ointment are used until the eruption establishes itself and becomes dormant. Sodium salicylate, rest in bed, and supportive treatment are sometimes indicated if the patient has joint pains and fever.

Psoriasis may remain localized in certain sites for years or for a lifetime. The usual localizations besides the elbows and knees are the scalp, nails, and palms. The last three sites are especially difficult to treat. Ammoniated mercury ointment as strong as 20 per cent can be used effectively and safely on the scalp.

Psoriasis of the nails may respond favorably to fractional doses of roentgen rays, but rarely to anything else.

Psoriasis of the palms is often painful and fissured so that a bland application such as equal parts of boric acid ointment and diachylon ointment is bound on until the fissures heal. The fissures can be painted with 10 to 25 per cent solution of silver nitrate.

Psoriasis arthropathica may be a coincidental association of psoriasis and arthritis. The psoriasis often improves as the arthritis becomes aggravated and vice versa. No known remedy seems regularly to improve or aggravate both conditions simultaneously. Undecylenic acid has been unsuccessful in my hands in treating patients with psoriasis and arthritis.

Generalized exfoliative dermatitis in psoriasis sometimes is spontaneous, but often is the result of too vigorous treatment and should be treated with soothing applications and colloidal baths. Stimulating treatment is rarely indicated, and then only when the eruption has been well established or stationary for a long time.

Pustular psoriasis can be treated with wet packs, colloidal baths, and bland applications. The antibiotics may be beneficial in the treatment of pustular psoriasis, but the author has not had the opportunity to use them.

In closing, one can only repeat that there is no satisfactory treatment for psoriasis. No one remedy benefits even a majority in a large series of patients with psoriasis. Even if a method of treatment is used successfully, this same method often proves worthless when used later on the same patient or group of patients with psoriasis.

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Treatment of Chronic Pancreatitis

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Chronic pancreatitis, resulting from a variety and frequently a combination of etiologic factors, poses a perplexing and often exasperating problem in therapy. Lacking concise pancreatic function tests, the response to treatment is not easy to evaluate since clinical improvement is seldom dramatic.

PREVENTIVE MEASURES

The causative role of *alcoholism* in chronic pancreatitis as well as acute pancreatic disease is sufficiently important to demand mention. In at least 50 per cent of our cases a history of acute or chronic abuse of alcohol has been elicited. Strict and com-

FIGURE 1*a*. Roentgen film of abdomen (during cholecystography) showing calcification of the pancreas.

FIGURE 1*b*. Postcholecystectomy film showing calcification of the pancreas.

plete avoidance of alcohol after an attack of acute pancreatic disease or in suspected or known chronic pancreatitis is desirable.

Recurrent pancreatic edema, so often a precursor of chronic pancreatitis, has in our opinion a strong etiologic relationship to chronic biliary tract disease, especially *chronic cholecystitis* and *cholelithiasis*. Removal of a chronically diseased gallbladder not infrequently is followed by a cessation of previously recurring attacks of pancreatic edema. Even in established chronic pancreatitis a cholecystogram should be obtained and if disease is demonstrated, the gallbladder should be removed.

GENERAL MEASURES

Since the dominant symptoms of any case of chronic pancreatitis will place it in one of 5 syndromes, the treatment will be discussed accordingly. This is not to say, however, that many cases will not bear features of 2, or perhaps all 5, of the syndromes.

Chronic pancreatitis with chronic pancreatic insufficiency—Failure to utilize ingested food with the resulting steatorrhea, creatorrhea, and excessive loss of carbohydrate leads to weight loss, deficiencies of the fat-soluble vitamins, and eventually to inanition. Since fat is the least well tolerated and most poorly economized foodstuff in this disease, a *high-protein, high-carbohydrate diet* is recommended. In an attempt to supply sufficient caloric intake, the individual should literally be stuffed. Commercially available *pancreatic extracts* should be used, but it is our feeling that they are of doubtful potency and should be administered in excess of recommended dosage. In our experimental studies, *raw pancreas* has no substitute in promoting the utilization of ingested food, including fat, in chronic pancreatic insufficiency. As much as 250 gm. may be incorporated into a meal by a skilled dietitian without any sacrifice of palatability.

The use of *detergents,* such as Sorlate, has in several of our cases been followed by improved fat utilization. Parenteral administration of the fat-soluble vitamins A, D, and K is required. Fatty infiltration of the liver, an occasional sequela of chronic pancreatic insufficiency which is manifested clinically by hepatomegaly, will usually respond to raw pancreas, choline, or lipocaic.

Chronic pancreatitis with pain—Pain of a constant and intolerable type, located deep in the epigastrium, often defies all and any therapeutic devices. On the other hand, the pain may be intermittent or episodal. In many such cases there is little

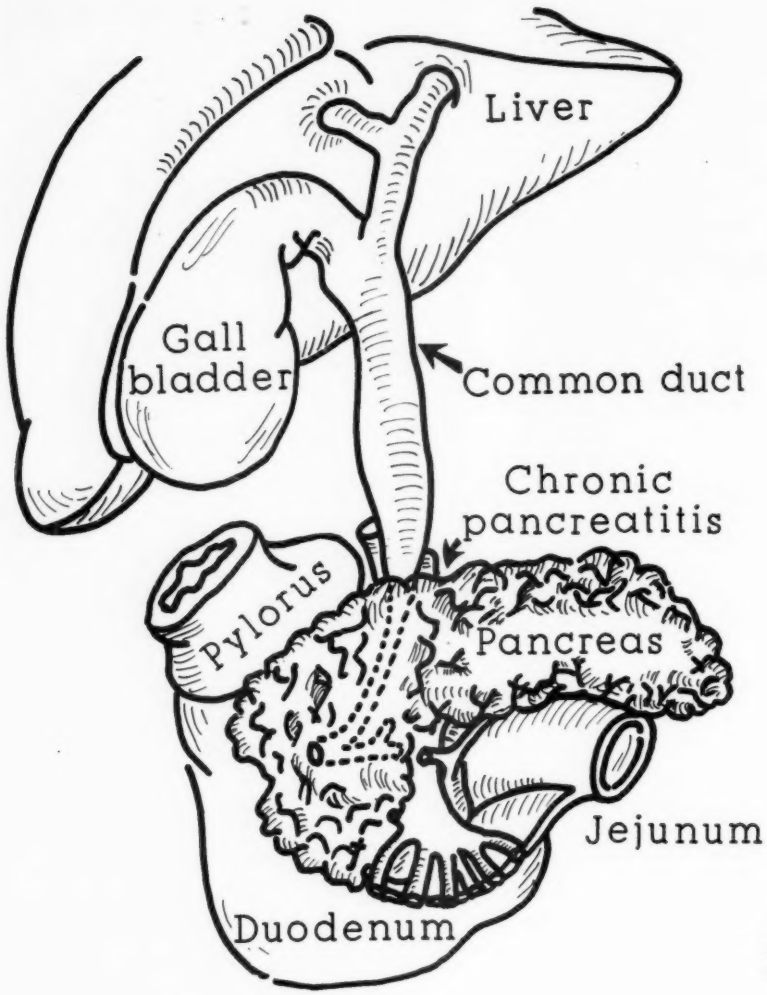

FIGURE 2. Chronic pancreatitis with obstruction of duct system.

or no demonstrable interference with the utilization of food. More often than not an antecedent history of recurring attacks of acute pancreatic edema may be elicited. The provocation or aggravation of the pain after eating or following an injection of secretin suggests that physiologic activity of the exocrine pancreas in the presence of stasis or obstruction of the pancreatic ducts is productive of the pain.

Calcification of the pancreas is often apparent by x-ray (Figure 1). Morphine is usually required for relief of the pain. Ephedrine sulfate (3/8 gr.) may on occasions be superior to the opiates. The use of antacids to lessen the production of secretin, thereby avoiding pancreatic stimulation, has been recommended, and for the same reason it has been suggested that subtotal gastrectomy or vagotomy may more effectively do likewise.

In those cases where the relief of pain by opiates or other analgesics is unsuccessful or threatens to lead to addiction, bilateral splanchnic block, using 1 per cent novocain, should be employed at a time that the pain is prominent. If this procedure is successful, bilateral splanchnicectomy should be carried out. In 5 such cases, we have been gratified by the complete and apparently permanent relief afforded.

Chronic pancreatitis with jaundice—Although the occurrence of jaundice in chronic pancreatitis is relatively infrequent, its presence requires particular consideration. A history of obstructive jaundice in association with former recur-

rent attacks of pancreatic edema or at any time during the course of chronic pancreatitis demands surgical exploration of the common duct. This view is predicated on the finding of calculi in the common duct in 4 cases of chronic pancreatitis who had no icterus at the time of surgical exploration.

The development of painless and progressive obstructive jaundice as a complication of chronic pancreatitis points to benign compression of the intrapancreatic part of the common duct rather than to cancer of the head of the pancreas. Cholecystojejunostomy, or any procedure designed to divert the obstructed bile, is indicated in such instances. On the other hand, the initial clinical manifestation of chronic pancreatitis may be painless jaundice, leading to an erroneous diagnosis of malignant obstruction in the head of the pancreas (Figure 2). In several such instances a radical pancreaticoduodenectomy was carried out before the benign nature of the obstruction was recognized.

Chronic pancreatitis with diabetes mellitus—Frank diabetes develops in less than 10 per cent of cases, the treatment of which differs in no major way from that of the average diabetic. Other clinical features of chronic pancreatitis will probably exist and require adequate treatment. However, neglect of the diabetes appears to affect adversely the entire clinical status of the case, and in several such instances fatal pancreatic necrosis intervened.

Secondary chronic pancreatitis—Varying degrees of chronic pancreatitis are usually associated with pancreatic lithiasis, pancreatic cysts, pancreatic fistulas, and with cancer of the head of the pancreas. Obviously appropriate treatment of the primary condition is required.

A Speech Training Program for Cleft Palate Children

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It has been estimated that 1 out of approximately 1,000 children* in this country is born with cleft palate deformity either with or without associated cleft lip. As a result of education of the general public and the interest and cooperation of health and philanthropic agencies, most of these patients are fortunately now being brought for surgical treatment early in life.

Speech training following operation has been neglected, however, and there are many children and young adults with what may appear to be technically satisfactory repair of the palate defect but whose speech is practically unintelligible outside the family circle. Others are handicapped by a mumbling nasal monotone and by objectionable twitching of the nose and facial muscles in an effort to control the breath stream effectively and produce articulate speech.

Most parents and even some surgeons fail to realize that establishment of adequate speech apparatus does not presage normal enunciation of sounds and that at the time of cleft palate repair even the youngest child has already established complex muscle patterns which interfere with proper speech habits. If he has already started to talk, he may not be aware that the sounds which he makes are not the same as the ones he hears and attempts to imitate. He must learn to distinguish between correct and incorrect sounds.

All cleft palate patients need speech evaluation and training following operation. It is obviously impossible for most of them to be placed in the hands of well-qualified speech therapists for lessons over a long period of time. In the first place, according to the Personnel Registry of the National Society for Crippled Children and Adults, Inc., there are only about 1,200 persons engaged in speech and hearing correction, and less than half of these are qualified to do speech corrective work beyond the apprentice level. An estimated 20,000 trained therapists are needed to fulfill present requirements for speech therapy of all types. The public schools generally are not equipped to take care of severe speech handicaps in the classrooms, and where speech clinics are available, they accept patients as a rule for only short periods of concentrated study.

In the final analysis, of course, the real responsibility for speech training must rest with the par-

*J. Sanders (*Genetica* 15:433, 1943) gives the incidence as 1:954. Gretchen Phair in a recent study (*J. Speech Disorders* 21:410, 1947) of cases in Wisconsin gives 1:770.

ents of the cleft palate child rather than with outside agencies. On this premise we have set up in the Department of Plastic and Maxillo-facial Surgery at the University of Texas Medical School a clinic to teach the mothers of cleft palate patients how to organize and conduct a program of home speech training.

At first glance it would appear that mothers are poorly qualified for such specialized teaching but we must realize that as our goal in the average case we are forced to accept her own speech, imperfect as it may sound to the ears of the expert. If we can give her some guiding principles of therapy, help her to recognize her child's individual speech problems, and furnish her with suggestions for teaching material from time to time, there is no reason why she cannot carry out her share of the program in a most satisfactory fashion.

We all recognize the fact, needless to say, that a small group of mothers will make unsuitable teachers because of lack of education, complete unconcern for the child's welfare, pressure of outside work, etc., and in these instances we try to interest social agencies in helping to arrange for some type of speech therapy outside the home.

Although some authorities may feel that the optimum time for cleft palate surgery is at the age of 5 or 6 and many speech therapists prefer to wait for lessons until the child has learned to read, we believe that the operation should be undertaken as soon as practicable—that is, at about the age of 2 years. In the hands of the experienced surgeon, primary operative failures are now minimal.

If we delay speech training until the child is old enough for school, a great deal of harm may ensue from overprotection on the part of parents on the one hand and subjection to teasing and ridicule by playmates on the other. A 2-year-old child, however, is not selfconscious, and is just beginning to talk and to be interested in picture books, which form the basic material of early speech training. A minimum of bad speech habits have been formed, and there has been little opportunity for the development of personality disturbances. The mother usually has more time to spend with a child of this age. Later on, with perhaps several other younger children, speech training may be neglected through press of other duties.

We have prepared for the use of mothers a simple pamphlet of speech training principles for the cleft palate child and have had this booklet translated into Spanish for Latin-American mothers from the Rio Grande Valley area and from Mexico.

The surgeon first discusses with the parents the importance of speech training as an adjunct to surgery and at the same time endeavors to clear up in their minds any misconceptions they may have concerning the etiology of such congenital deformities. Arrangements are then made with the speech therapist for several conferences. The booklet is explained in detail, and the mother is encouraged to ask questions after a preliminary study of the material.

Meanwhile the child's speech is tested, and an analysis of his chief difficulties is made for the mother to take home with her. Records are made of his voice for the office files, and if she has access to a phonograph, she is given a record to take along in order to be able to follow his progress more accurately.

The child is given several "sample" lessons with the mother present as both observer and participant, and there is a final conference before the patient is discharged to return home. Thereafter contact is maintained with the mother by personal letters and by a monthly bulletin containing suggestions for additional lesson material—games, songs, word drills, etc. Wherever possible we suggest that the patient be brought back at regular intervals for further speech evaluation and to talk over individual problems which have arisen.

In conclusion, it may be pointed out that supplementary teaching of the handicapped child by his own mother is not an innovation but has been successfully employed for blind and deaf children and for those with cerebral palsy as well as other types of deformities. Home speech therapy for the cleft palate child following operation has much to offer as an important part in the complete rehabilitation of the patient.

COMING POSTGRADUATE COURSES

Duke University School of Medicine and Duke Hospital, Durham, North Carolina

One month course in medical mycology, July 3-29, under direction of Dr. Norman F. Conant. Emphasis will be on practical aspects of the laboratory as an aid in diagnosing fungus infection

International Academy of Proctology, Flushing, New York

Second annual convention, June 23-24, at Bellevue Hotel, San Francisco

The Medical College of Georgia, Augusta

Seventh graduate course in endocrinology, September 4-9, offered as a refresher and guide in those aspects of basic endocrinology which have practical and clinical application. Lectures will deal with the endocrine problems which arise in everyday practice and are designed for the practicing physician. Registration is limited to 50. Enrollment open to all qualified physicians. Applications should be addressed to the Registrar of the college

The National Gastroenterological Association

Postgraduate course in gastroenterology, at Hotel Statler, New York City, October 13-15, 1950, under the direction of Dr. Owen H. Wangensteen. For further information and enrollment, write The National Gastroenterological Association, Dept. GSJ, 1819 Broadway, New York 23.

Scientific Exhibit

Nerve Tension and Inflammation

LAURENCE JONES, M.D.

CEDARS OF LEBANON HOSPITAL, LOS ANGELES

FOREWORD

It has gradually become apparent that faults in foot posture and their correction have assumed a vital and ever increasing importance. In the past the foot has been considered as if it were a separate unit. Instead, it will be demonstrated that *the foot is the foundation of the body.*

This exhibit will present varied evidence all tending to prove that deviations in foot planes cause corresponding serial changes in the superstructure. Major shifts may be recognized as the cosmetic defects of faulty body posture, but frequently slight, almost imperceptible variations may be the root cause of a great multiplicity of symptoms. Of these the most important is pain due to nerve tension.

Exhibited with modifications at the A.M.A. Convention in San Francisco in 1946 under the title, "Sciatica and Low Back Pain"; at the Chicago meeting in 1948 under the title, "Generalized Fatigue and the Varied Neuralgias," and at the Atlantic City meeting in 1949 under the present title.

The Cause

The primary phase—A series of related anatomic distortions progress from below upwards and combine to produce elongating tension. This may be transmitted in varying degrees to the entire nervous system.

The secondary phase—After a varied time lapse, long continued dysfunction due to angulation and torsion and their joint product, inequality of weight-bearing, may produce inflammation (non-infectious) of: (1) Nerves (neuritis), (2) Arteries and veins (arteritis and phlebitis), (3) Muscles (myositis), (4) Fascia (fibrositis), (5) Ligaments (periarthritis), and (6) Joints (arthritis).

Evolution and Function

Human bipedal gait and stance are, in many respects unique, and are largely a product of the human brain. This is incomparably the supreme achievement of comparative evolution and serves as the governor (steering mechanism) responsible for the relatively advanced position of the human race. At the same time, *excessive cerebral demands on function have in certain areas (feet, legs, pelvis and spine) outstripped the changes wrought by evolutionary adaptation.*

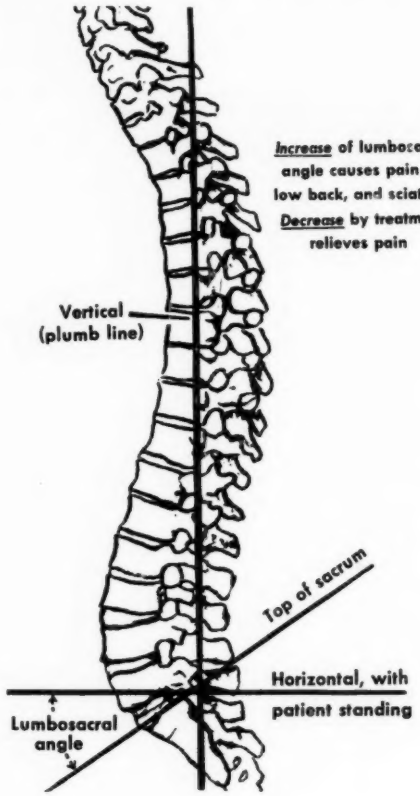

Increase of lumbosacral angle causes pain in low back, and sciatica; Decrease by treatment relieves pain
Vertical (plumb line)
Top of sacrum
Horizontal, with patient standing
Lumbosacral angle

FIGURE 1. *(Right)* The human spine —mechanically unstable and muscularly unbalanced—is an evolutionary laggard, a "quadruped spine turned upright on its base."

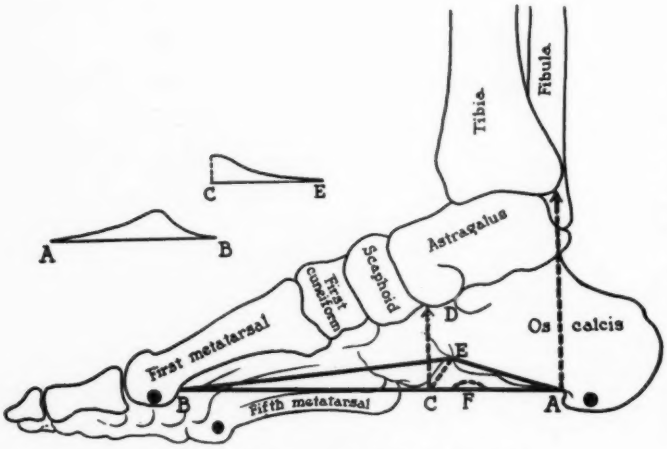
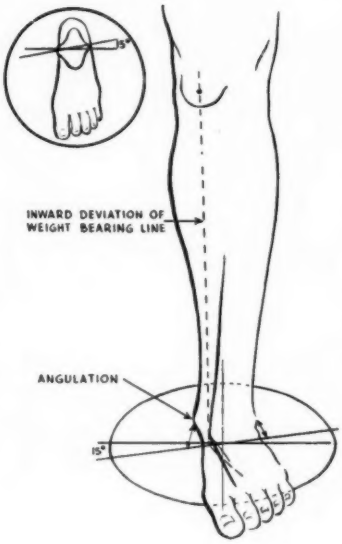


FIGURE 2. Basic anatomy of the foot. Lateral view of foot tripod and points of surface anatomy that determine length and unstable formation of the longitudinal arch.

Human gait is basically unstable in that (1) we stand on two feet but walk on one—one foot at a time; (2) the foot is an exceedingly small, off-center base for a very large superstructure, the body; (3) with the complete alternation of bipedal gait, at the instant of full weight bearing, full body weight is directed toward the inside border of the foot; (4) as a result, inward roll of the foot and leg is inescapable and faults in foot posture in varying degrees are almost universal; and (5) "flat" or painful feet are not a factor as in this complex the majority have high-arched, painless feet.

Every phase of diagnosis and treatment that constitutes this different approach is based on the heretofore undescribed physiologic principle. POSTULATE: Every movement of the foot during the weight-bearing position causes an equivalent corresponding movement in the remaining segments of the leg. COROLLARY: With the leg completely extended at the moment of full weight bearing, any roll (rotation) of the foot towards its inner border from the slightest to the maximum degree produces an exactly equivalent rotation of the entire leg from the ankle to the hip joint.

THE GENERAL OR BIMANUAL ROTATORY TEST



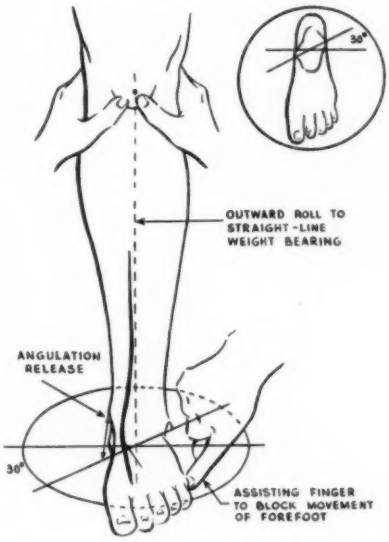


FIGURE 3. *(Left)* The primary or "trigger" mechanism. The inward roll of the foot that provokes the equivalent internal rotation of the leg. Note angulation of soft structures (nerves and blood vessels) beneath internal malleolus. Beginning of serial distortion and nerve tension (see postulate and corrollary above). *(Right)* Bimanual rotation of the knee rotates the foot outward to straight line weight bearing, reversing the mechanism causing serial distortion and releasing nerve tension in the superstructure. A general fundamental test to both diagnosis and treatment.

SPECIAL "FINE" OR FINGER TEST

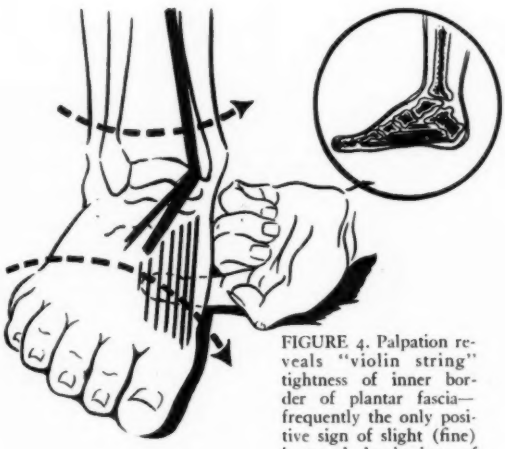
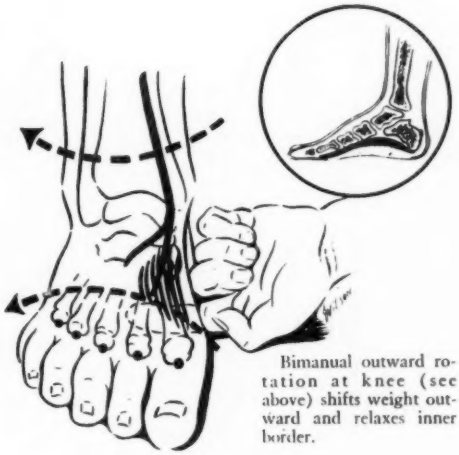


FIGURE 4. Palpation reveals "violin string" tightness of inner border of plantar fascia—frequently the only positive sign of slight (fine) inward deviation of weight bearing.



Bimanual outward rotation at knee (see above) shifts weight outward and relaxes inner border.

OUTER CIRCLES SHOW THE CYCLE OF CORRECTION AND RELEASE

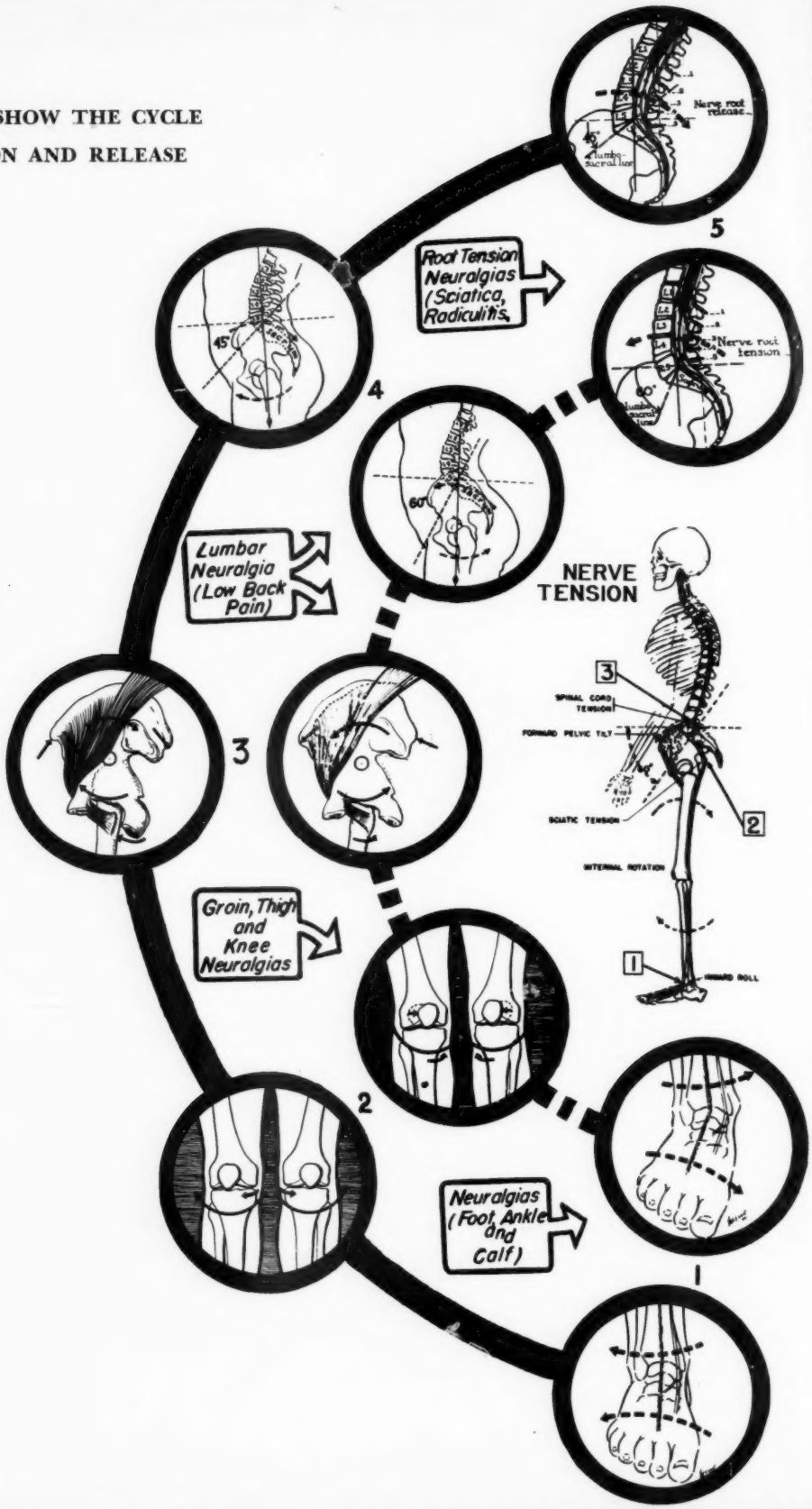
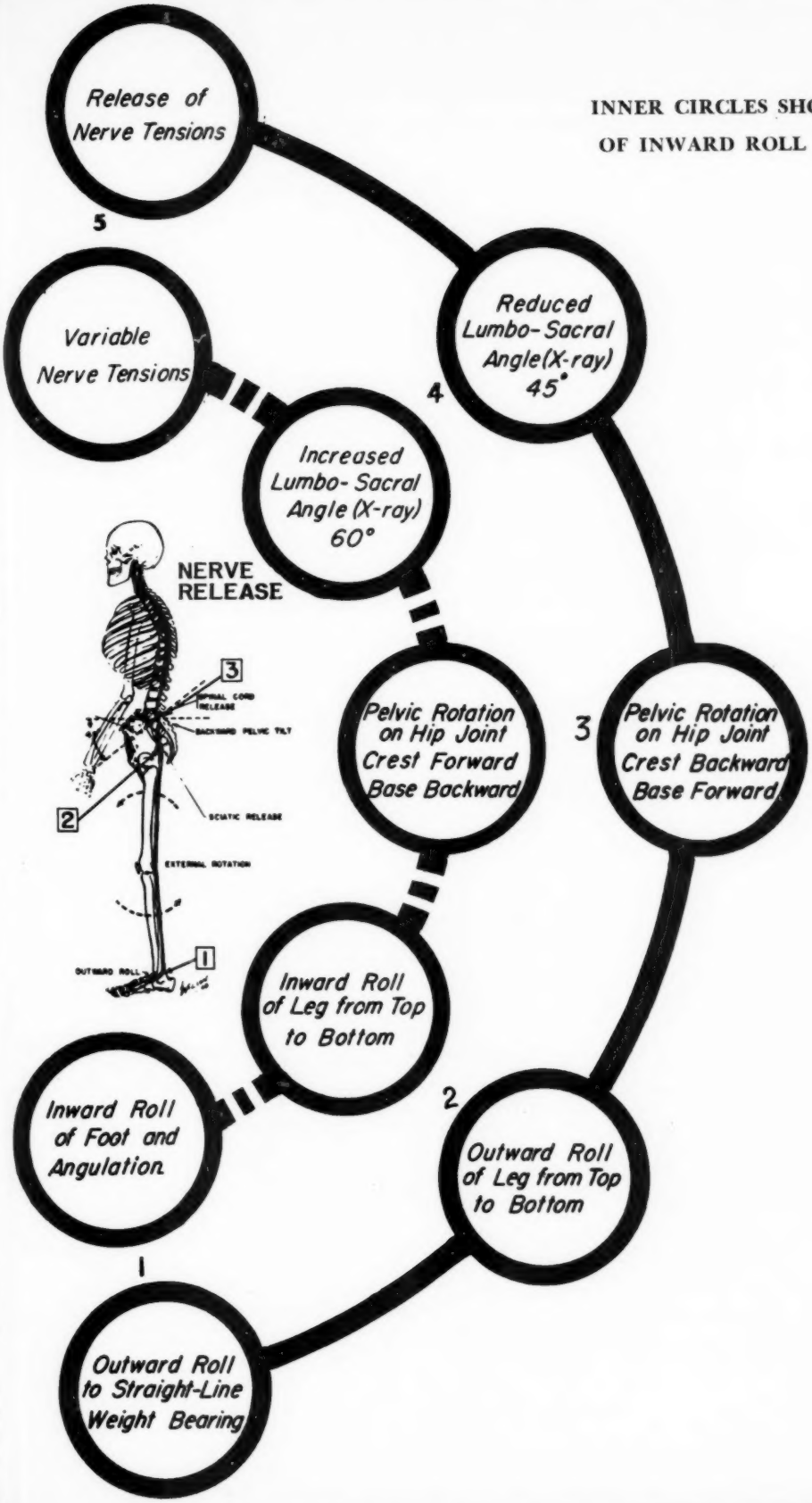
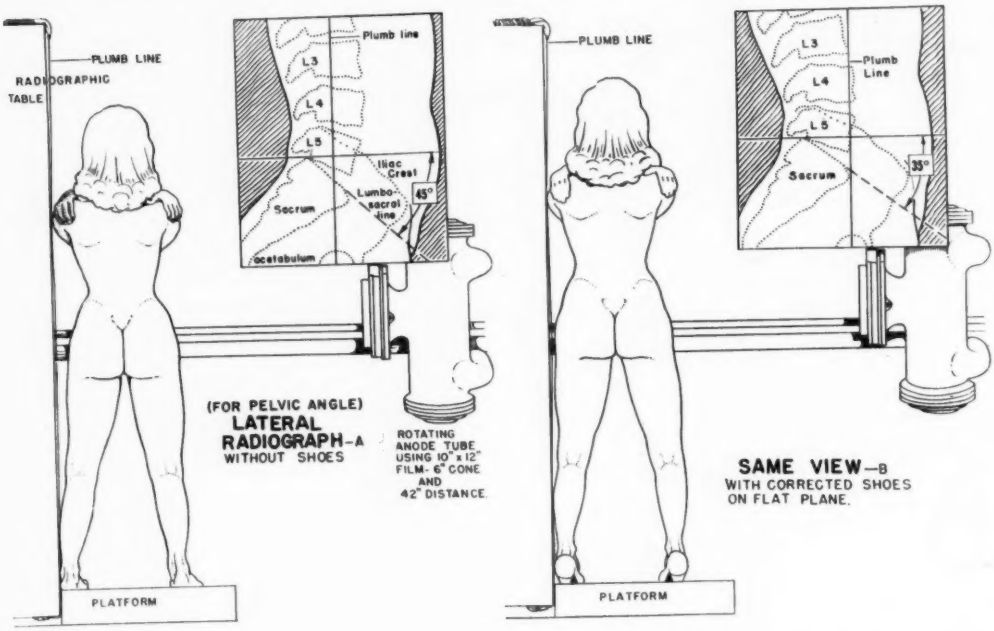


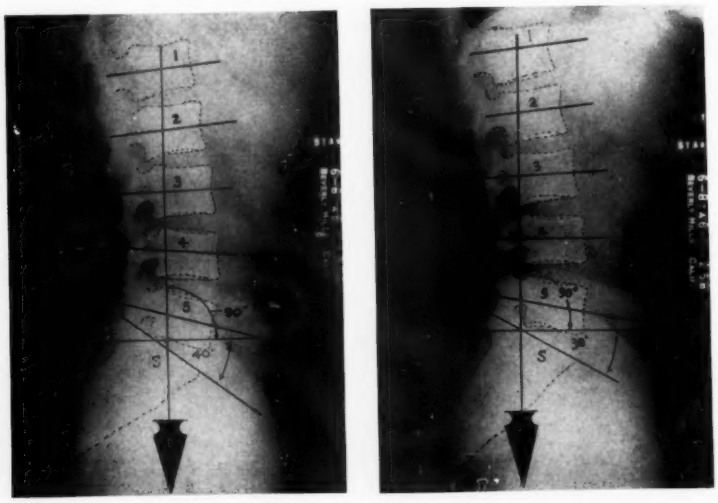
Figure 5

INNER CIRCLES SHOW THE CYCLE
OF INWARD ROLL AND TENSION



TECHNIC FOR DETERMINING THE LUMBOSACRAL ANGLE BY X-RAY





ANGLE OF PAIN

ANGLE OF RELIEF

FIGURE 6. Case of chronic sciatica—four years duration relieved by decreasing the lumbosacral angle from 40° to 30°. Note that pelvic shift is predominant, carrying with it in lessening degree the 5th and 4th lumbar vertebrae. Significantly this is the area of disk protrusion, which may be caused by this pattern of movement.

THE SUITABLE SHOE AND ITS REINFORCEMENT

The first stage—a general reinforcement applied to selected shoes as an essential preliminary to the next phase of correction based on individual measurements.

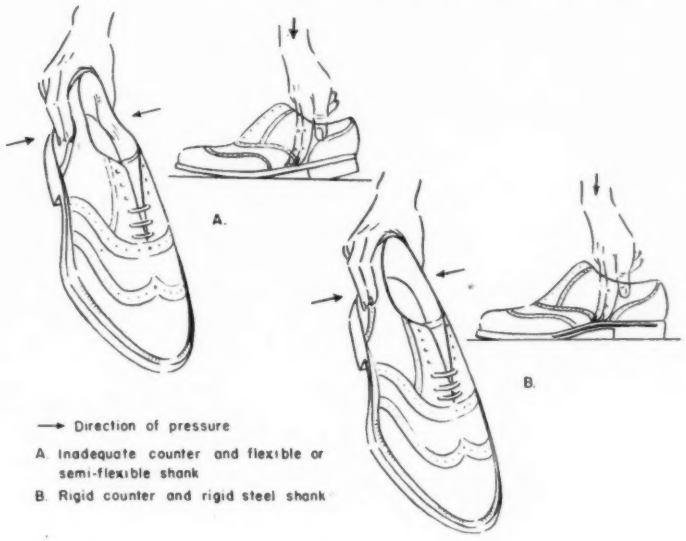

A.
B.
→ Direction of pressure
A. Inadequate counter and flexible or semi-flexible shank
B. Rigid counter and rigid steel shank

FIGURE 7. A bridge cannot be built on quicksand. The suitable shoe must have adequate built-in structural strength.

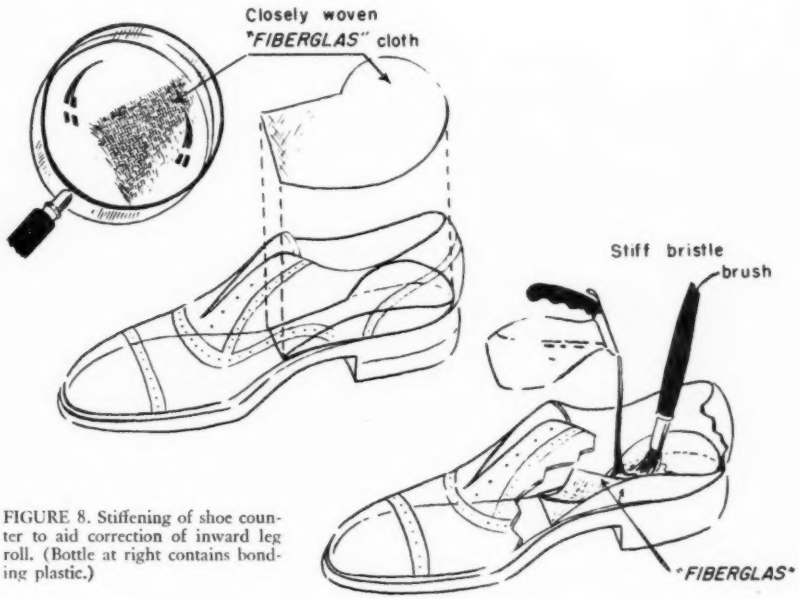


FIGURE 8. Stiffening of shoe counter to aid correction of inward leg roll. (Bottle at right contains bonding plastic.)

SIMPLIFIED TECHNIC OF FOOT MEASUREMENT

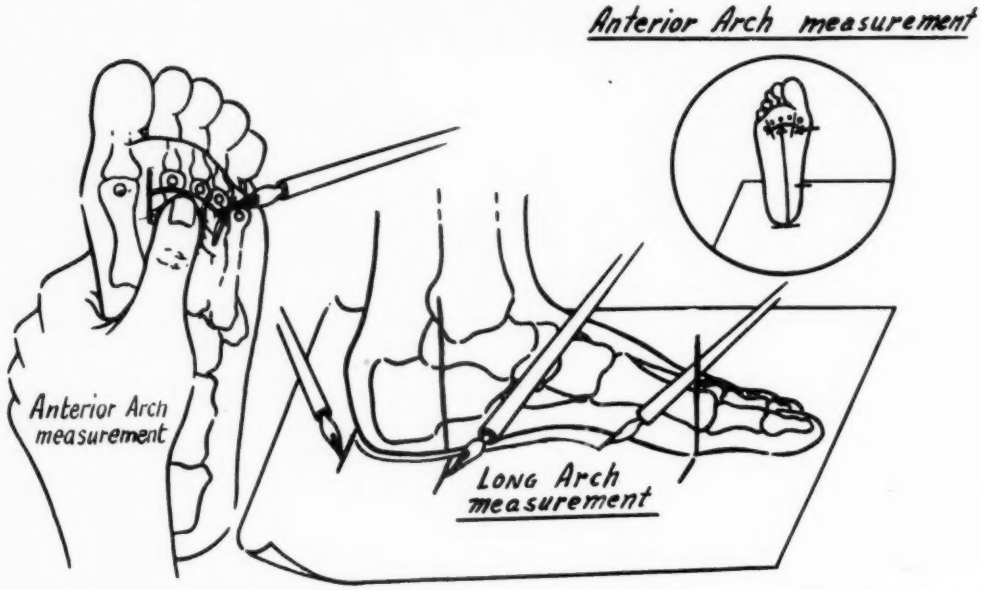


FIGURE 9. Method of securing accurate foot measurements by simple paper, pen, ink transfer and outline. Circle at upper right shows key points of actual measurement (three in number secured from tracing); from heel to (1) projected line downward from internal malleolus; (2) to head of first metatarsal; and (3) to heads of second, third and fourth metatarsals.

INDIVIDUAL CORRECTION OF THE SUITABLE REINFORCED SHOE

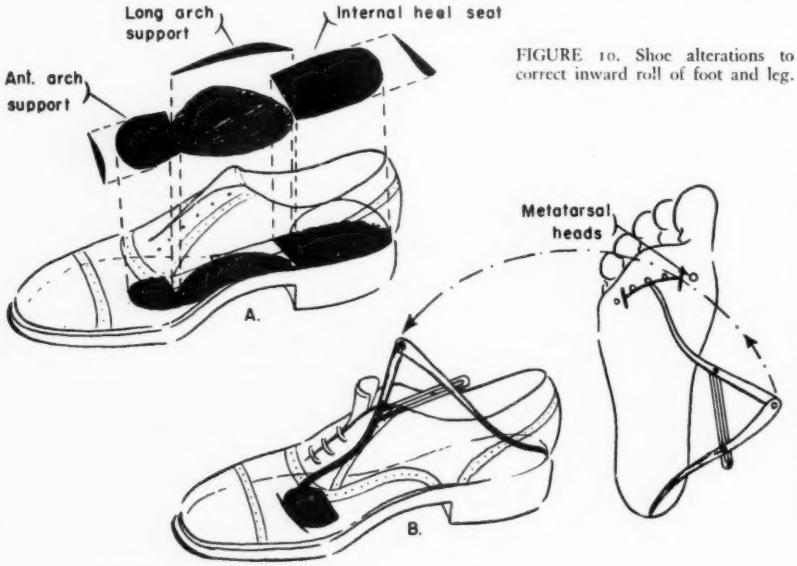


FIGURE 10. Shoe alterations to correct inward roll of foot and leg.

A. Corrective supports
B. Method of locating Ant. arch support

The second stage. As a result of these varied steps, the shoe is transformed into a brace having sufficient structural strength to block continuously the internal rotation accompanying the alternate impact of full weight bearing—tons of weight per mile per shoe. This cannot be accomplished by movable arches of any type, and still less by flexible shoes or exercises.

COMPARATIVE STATISTICAL ANALYSIS OF CHRONIC LOW BACK PAIN

Based on 500 consecutive intractable cases from four different sources. For the purpose of comparative statistical study, it was necessary to establish a fixed neuralgia, using only cases that had had chronic low back pain for at least 90 days. In addition, they must have been completely intractable to all forms of therapy. In the disk protrusion section, only those cases with positive neurologic diagnoses were used.

	SEX	GROUP AGE INCIDENCE	DURATION OF CHRONIC LOW BACK PAIN	ALLIED SYMPTOMS
LAURENCE JONES, M.D., 250 cases Jan. 1, 1946 to Mar. 1, 1949	Male 55% Female 45	10-20 1% 21-30 12 31-40 29 41-50 39 51-60 14 61-70 4 71-80 1	1 year or less 16% 1 to 5 years 39 5 to 10 years 27 Over 10 years 18	Fatigue 82% Leg aches Fixed 41; movable 65; paresthesias 24 Sciatica 48 Upper root pain Fixed 29; movable 38; paresthesias 13
M. WESLEY FARR, M.D., ROYAL C. PAYNE, M.D., and H. E. PETERSEN, M.D., 250 cases Jan. 1, 1946 to Mar. 1, 1949	Male 35% Female 65	10-20 1% 21-30 17 31-40 22 41-50 21 51-60 23 61-70 11 71-80 4	1 year or less 12% 1 to 5 years 32 5 to 10 years 26 Over 10 years 30	Fatigue 46% Leg aches Fixed 33; movable 14; paresthesias 11 Sciatica 25 Upper root pain Fixed 41; movable 12; paresthesias 14

FREQUENCY OF DIAGNOSIS OF DISK PROTRUSION	ANALYSIS OF THERAPEUTIC RESULTS	ANALYSIS OF TIME ELEMENT IN THERAPY	ANALYSIS OF THE CAUSES OF FAILURE
Positive diagnosis (by others) with operation advised but deferred No. 38 Positive diagnosis (by others) with operation advised and performed (no fusion) 5 Benefited by conservative treatment 33 Failures 10	Substantial benefit 84% Failures 16% Postural correction effective in 84%	10 days or less 16% 10 days to 1 month 35 1 to 3 months 27 3 to 6 months 4 6 months to 1 year 4 Failures 14	No. Uncooperative 11 Failures due to causes other than posture 7 Technical difficulties in patient or method 11
Positive diagnosis (by others) with operation advised but deferred No. 6 Positive diagnosis (by others) with operation advised and performed (no fusion) 2 Benefited by conservative treatment 7 Failures 1	Substantial benefit 87% Failures 13% Postural correction effective in 87%	10 days or less 13% 10 days to 1 month 30 1 to 3 months 35 3 to 6 months 8 6 months to 1 year 1 Failures 13	No. Uncooperative 15 Failures due to causes other than posture 9 Technical difficulties in patient or method 9

NOTE: Study of past records in these very chronic cases reveals many conflicting diagnoses, leading to the conclusion that *great diagnostic confusion is the rule rather than the exception.*

SUMMARY AND CONCLUSIONS

At the present time, in the greater number of cases, the location of a neuralgia is thought to indicate the cause. Conversely, this varied material tends to refute this concept. The central nervous system is a continuous structure from a plantar nerve ending on the sole of the foot to the last cerebral cortical cell. Elongating tension in one area must of necessity be transmitted in varying degree to others frequently far distant. Continuously maintained correction of the serial distortion causing this will tend to reverse the process.

EDITORIALS

Postgraduate Medicine
OFFICIAL JOURNAL OF THE INTERSTATE POSTGRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA — ORGANIZED IN 1915

Editor-in-chief: CHARLES W. MAYO, M.D.
Contributing Editor and Editorial Writer: MORRIS FISHBEIN, M.D.
Assistant Editor: SYLVIA COVET

JUNE 1950

THE NATIONAL MEDICAL LIBRARY

For many, many years physicians interested in the advancement of medical science in the United States have striven earnestly to secure a new building for the magnificent collections of medical books, periodicals, engravings, and other literary materials housed in a ramshackle, decrepit firetrap in Washington known as the Army Medical Library Building. For at least two generations the House of Delegates of the American Medical Association has passed repeatedly strong resolutions urging the Congress to enact the necessary legislation for a site and for the building of a new structure near to the Library of Congress. Now as a part of the reorganization of the federal government, proposals have been made to assign the library to the United States Public Health Service which is incorporated in the Federal Security Agency.

Other proposals have suggested that the library be moved to Bethesda where both the United States Public Health Service and the Navy have hospitals and research institutes, or that the library be moved to the Army Medical Center near the Walter Reed Hospital. Since the library now maintains some of its most valuable items in Cleveland, the suggestion has been made that the entire collection be moved to some inland city.

Many of those most familiar with medical bibliography feel that the proper place for the Library is on a site adjacent to the Library of Congress, and furthermore, that the Library could be best administered and budgeted along with the Library of Congress provided that the direction and administration of the institution could be placed in the hands of physicians of competence in the field of library administration. Certainly many medical librarians of long experience as well as physicians could be included in such an advisory board.

Due to the instability of the situation the Army Medical Library is having increasing difficulty in meeting its responsibilities. Such projects as the Index Catalogue, the Current Medical List, preparation of bibliographies, microfilm services, and access to the vast collections are unquestionably languishing and deteriorating. Under such circumstances the morale of employes is bound to suffer. The Honorary Consultants of the Library, including more than a hundred leaders of medicine have discussed the subject at great length and have passed resolutions without much response from responsible legislators or administrators.

Something needs to be done—and done promptly—about this situation. Replacement

of the treasures that could be lost by fire would be impossible. Depreciation in the materials now housed in the dilapidated building goes on rapidly. Administration cannot be efficient when dissatisfied employes are crowded closely in inadequate quarters. Any of the solutions proposed would be an improvement! The ideal solution could be achieved in the near future if only the Bureau of the Budget, Congress, and those members of the Cabinet most concerned could have their attention brought to a focus on the existing situation.

MORRIS FISHBEIN

FELLOWSHIP FOR FREEDOM IN MEDICINE

When the history of the British National Health Act and its effect on the health and welfare of the British citizen is finally written, much space will have to be given to the Fellowship for Freedom in Medicine and particularly to Lord Horder who has been its inspiration and its guide since its origin. In this organization several thousand physicians are exerting their influence to inform the British people of some of the problems of the service and thus wielding much influence in securing reforms at this time. In association with the election held in Great Britain in February, the Fellowship for Freedom in Medicine issued a pamphlet supplying factual material on questions likely to be put to parliamentary candidates.

Here are a few of the facts that are emphasized. The pamphlet points out that the National Health Service was put into operation prematurely and that it has been used as a political weapon because people are getting so-called "free" medicine and appliances but "do not yet realize that they are not getting value for their money. In actual fact," the pamphlet says, "what they are getting is a lower standard of medical attention than before, both in the surgeries and in the hospitals." The pamphlet warns against the possibility that the service in its existing form could not cope with an epidemic effectively. Whereas the proponents of the program had much to say about health centers, these appear "to have gone by the board." The National Health Service costs more than double the original estimates.

Among the effects of the National Health Act, against the public interest, are an increase in malingering and industrial absenteeism, exercise of monopoly over the manufacture and distribution of medical equipment, denial to private patients of services rendered to those who enroll under the panels, interference with the doctor-patient relationship, prevention of free choice of physician for maternity care, delays of many months in securing medical appliances, dentures and spectacles, overwork of physicians and the consequent loss of time for reading and study.

Among reforms now urged by the Fellowship for Freedom in Medicine are restoration of the right of private practice and free provision of drugs and appliances for private as well as public patients, also granting of a rebate to private patients for space used in a hospital under the Act, drastic revision of the autocratic powers entrusted to the Minister, increase in hospital beds, change in the principles of remuneration, safeguarding of professional secrecy and return of academic freedom to medical teaching institutions which are now subject to direct or indirect state control.

MORRIS FISHBEIN

THE INDEXING OF MEDICAL WRITINGS

At this time the indexing of medical writings is in the most confused, inadequate and unstable condition since 1916. Modern medical research and education have expanded tremendously. The unpublished references prepared for the Index Catalogue of the Army Medical Library now number 1,750,000. If indexing and publication proceeded at the present rate the number in 1960 would be 3,750,000.

The Quarterly Cumulative Index Medicus is no longer either quarterly or completely cumulative and the last half of 1948 has not yet been published. The publishers—the American Medical Association—propose to omit entirely the first half of 1949 and to adopt a new photographic process to hasten publication of the last half of 1949. This index does not cover adequately monographs or even approximate the complete medical literature of the world. In its field, nevertheless, the Quarterly Cumulative Index Medicus has provided the best indexing anywhere available.

At various times Italy, Argentina, Russia, and Poland have published national medical indexes. More recently Portugal, Belgium, Czechoslovakia, Switzerland, Spain, Denmark, Poland, Japan, and Russia have been publishing indexes of their own medical literature. One Russian publication is issued in Italian, and the other larger one has stated as its purpose: "facilitating the liquidation of subservience to the bourgeois sciences, and leading to still greater Soviet medicine."

The entire question of medical indexing has been studied by a Committee of Consultants appointed by the National Research Council. This Committee has recommended discontinuance of the Index Catalogue of the Army Medical Library, and the substitution therefor of a monthly publication with author and subject indexes to be cumulated into an annual volume. The Army Medical Library has now announced its decision to close the Index Catalogue with the volume currently in press, to publish the most valuable of the 1,750,000 cards in its backlog, and to begin the new monthly index in July, 1950.

The importance of prompt publication of an index to the important medical literature of the world need not be argued. Will the new monthly index meet the needs of those in medical research? Granted that the medical periodical literature of the world includes some 7,000 publications, how many can be covered by any published index? Should the Quarterly Cumulative Index Medicus, now almost two years late, and covering only some 800 periodicals completely and an equal number in part, be discontinued also? The American Medical Association actually provides from $40,000 to $60,000 per year to maintain this publication. Can a system be developed to provide at reasonable cost to those in research the complete bibliography to any subject on microfilm? Incidentally the Index Catalogue has cost approximately $175 per copy to produce and only 1,000 are published whereas the Quarterly Cumulative or rather the Index Medicus circulates many more copies and is more widely used even where both are available.

The answers to the questions here proposed are vital to the maintenance of medical progress in the United States. The medical profession needs to concern itself much more seriously than it has in the past in finding solutions to the problems of medical indexing.

MORRIS FISHBEIN

THE INDEX-CATALOGUE: 1880 — 1950

Frank B. Rogers, Major, M.C.
Director, Army Medical Library
and
Scott Adams
Assistant to the Director

The *Index-Catalogue,* as planned for a nineteenth-century public by Dr. John Shaw Billings, published medical subject literature in alphabetical series, with as many as thirty-five years intervening between publication of bibliographies on the same subject. The references deferred from publication are stored in manuscript files holding (January 1, 1950) 1,750,000 references.

The increased production of the world's scientific literature has created a situation where the indexing of the Army Medical Library's receipts proceeds at a rate (200,000 per year) greatly in excess of its current publication rate (80,000 in three years), or even of its pre-war publication rate (80,000 per year). Because of this discrepancy in rates, the 1,750,000 unpublished references would be increased, despite publication, to 3,750,000 in 1960. The Library adds 520,000 references to the unpublished file every time it publishes a volume of 80,000, and by 1957 it would be withholding from publication more references than it would have published from 1880 to 1957.

Inasmuch as the volumes have presented huge accumulations of references under specific subjects, they have tended to obscure rather than disclose single references entered according to practice under one subject only, and buried in necessarily elaborate breakdowns.

Today, when mid-twentieth-century medical research has resulted in a tremendous expansion of scientific publication, the alphabetical form and slowness of publication of the *Index-Catalogue* have made it inadequate for purposes of scientific bibliography.

The entire question of medical indexing has been under study by a Committee of Consultants for the last two years. The following are its members:

Dr. Lewis H. Weed, Chairman (to September 29, 1949), National Research Council.

Dr. Basil G. Bibby (appointed September 29, 1949), Eastman Dental Dispensary.

Mr. Verner W. Clapp (appointed September 29, 1949), The Library of Congress.

Miss Janet Doe, New York Academy of Medicine.

Dr. Morris Fishbein.

Dr. John F. Fulton, Yale Medical Library.

Dr. Ebbe C. Hoff, Medical College of Virginia.

Dr. Sanford V. Larkey, Welch Medical Library.

Dr. Chauncey D. Leake, Chairman (from September 29, 1949), University of Texas.

Colonel J. H. McNinch, M.C., Office of the Surgeon General.

Dr. William S. Middleton, University of Wisconsin.

Dr. Eugene W. Scott, U. S. Interdepartmental Committee on Scientific Research and Development.

Mr. Ralph R. Shaw, Department of Agriculture Library.

Dr. Mortimer Taube, U. S. Atomic Energy Commission.

Major Frank B. Rogers, M.C. (ex-officio), Army Medical Library.

In addition, the Surgeon General has maintained a research project under the direction of Dr. Sanford V. Larkey for the continuing investigation of specific problems in medical indexing.

The Committee has recommended the discontinuance of the *Index-Catalogue* and the substitution of a monthly publication, with author and subject indexes to be cumulated into an annual volume. The Army Medical Library, with the concurrence of the Surgeon General of the Army, has announced its decision to close the *Index-Catalogue* with the volume currently in press, to publish the most valuable portions of the 1,750,000 cards in its backlog, and to issue the new index in July, 1950.

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". . . a professionally suspicious attitude."

Men of Medicine

No More Neuroses

THERE is one nice thing about being a medical examiner—you don't have to treat neuroses. That is the way Dr. Thomas A. (for Arthur) Gonzales, Chief Medical Examiner of the City of New York, feels about it. And that is one of the chief reasons why he became a pathologist and found himself performing or supervising, so far, between 8,000 and 10,000 autopsies.

Dr. Gonzales, now a brisk and bright 72, started to practice medicine in 1901, but he could not become really interested in the neurotics and other emotionally ill patients who came to his office. He made laboratory tests, had x-rays taken, but nothing abnormal showed up although they were still sick. It made him restless. He wanted to see something in a microscope or test tube; he wanted something he could get his hands on. He became more and more interested in pathology and finally decided to devote his life to it.

The man who liked to see ailments written down in black and white has seen plenty in the red blood of the autopsy table and the varied colors of chemical tests in his forty-nine years in the practice of medicine, thirty-two of them in the medical examiner's office.

Dr. Gonzales, brown-eyed and intent, likes to look back over the cases he has handled, and explains calmly and thoughtfully: "I remember this case." But sometimes he finds that in order to get an explanation that satisfies him he has to go beyond his beloved test tubes and microscopic slides and into psychology.

There was, for instance, the case of the strangely energetic dead man, found in a seedy rooming house on New York's lower East Side. Two Greeks lived together. The building superintendent discovered one of them dead in bed, lying on his left side and clad in pajamas; the other had disappeared. The man seemed to be doubly dead. There was a contact bullet wound in his right temple; the bullet had gone right through the head and into the pillow, so it was certain he had been shot as he lay on the bed. There was considerable blood on the pillow, too, a further indication that he had been shot right there where he was found.

←

DR. THOMAS A. GONZALES

That was a common enough happening in the world of violent and sudden death that forms Gonzales' medical career. But a gas tube led from an old-fashioned gas jet on the east wall to the dead man's mouth. However, there was no smell of gas in the room, the gas had been turned off, and a window was open, unusual in the case of a suicide by gas. Stranger still, no gun was in sight. But there was a .32 calibre, five-shot revolver lying in a bureau drawer, seven or eight feet from the bed; in the drawer near the revolver was a recently discharged empty shell, and later ballistic tests showed that the bullet found on the pillow fitted the gun. There were no fingerprints on the gun; there rarely are, despite the plots of mystery story writers. But there was one clue that they would love; a woman's green cloche hat, a type popular in the late 1920's, lay on the floor. Well, what was it? Murder? Suicide? And what had killed the man? Who had put the gun away, turned off the gas, opened the window?

Under Dr. Gonzales' direction, the laboratory men went to work. Tests showed that the dead man's blood contained 50 per cent carbon monoxide; 25 to 30 per cent would have been enough to kill. But the bullet would have been enough to kill, too, and the amount of bleeding showed that he had been shot before death. So, murder or suicide? It did not seem logical for a murderer to shoot a man, rig up the gas tube, then return to put away the gun and shut off the gas. A murderer usually wants to get away fast; if he wanted to make a murder look like a suicide, he would have put the gun in the man's hand or on the bed, not hidden it in a bureau drawer. Suicides, on the other hand, often use more than one method; a combination of gas and gun would not be improbable. And it was highly improbable that a man shot through the head would have the strength to put the gun away in the drawer before becoming unconscious. Unconsciousness would ordinarily supervene immediately, and the gun would be found on the bed or possibly on the floor in front of the bed.

And what about the green cloche hat? No other female apparel was found in the place. The most logical explanation, Dr. Gonzales thinks, is this:

the man fixed the gas tube, turned on the gas, then, lying down, shot himself—living long enough to inhale the lethal quantity of gas. Then, after he was dead, somebody else came in, probably a woman; she turned off the gas, opened the window, and then, with some strange instinct for tidiness, put the gun and the discharged cartridge away in the drawer and, finally, excited, left her hat when she fled. The man's room-mate, he thinks, also ran away for fear of getting involved; it is likely that the building superintendent had nothing to do with it. The case was written down as "probable suicide," and that is as near as Dr. Gonzales cares to come to a final verdict.

OTHER cases that Dr. Gonzales recalls have come to a more satisfying scientific conclusion in this most exciting specialty in medicine. There was, for instance, the case of the naked nurse, found dead in a shabby New York rooming house. A young chiropractor, in whose room she was found, explained that she had stayed the night with him, and had collapsed and died suddenly the next afternoon. It seemed to the police like an open and shut case of heart attack, but since she had not been attended by a physician before her death, they notified the medical examiner's office, as they are required to do. An autopsy was ordered. Dr. Gonzales noted the obvious fact that the woman had been four months pregnant and that an attempt at abortion was indicated by frothy fluid blood between membranes in the uterine cavity. The equally obvious fact that there were air bubbles in the uterine veins indicated the death might have been due to an air embolism, so the heart was carefully opened under water. Sure enough, air bubbled up from the heart, and the right side of the heart was full of frothy blood. How did the air get there?

The chiropractor began to tell the truth. The nurse, he now said, had come to him and begged him to "do something" about her pregnancy; the doctor in whose office she worked had turned her down. She had already inserted a glass catheter into the uterus, and she asked him to inject some fluid into it. As he had no means of doing so there in his room, she asked him to blow air through the catheter. He did, and she suddenly complained of faintness, then collapsed. Afraid of being accused as an abortionist, although an unsuccessful one, he threw the catheter into the North River, then went to a movie to thinks things over. He finally called his estranged wife, and told her, discreetly, part of the story. She advised him to call the district attorney's office, which he did. Fortunately for the chiropractor, the courts believed his story and he got off with a suspended sentence.

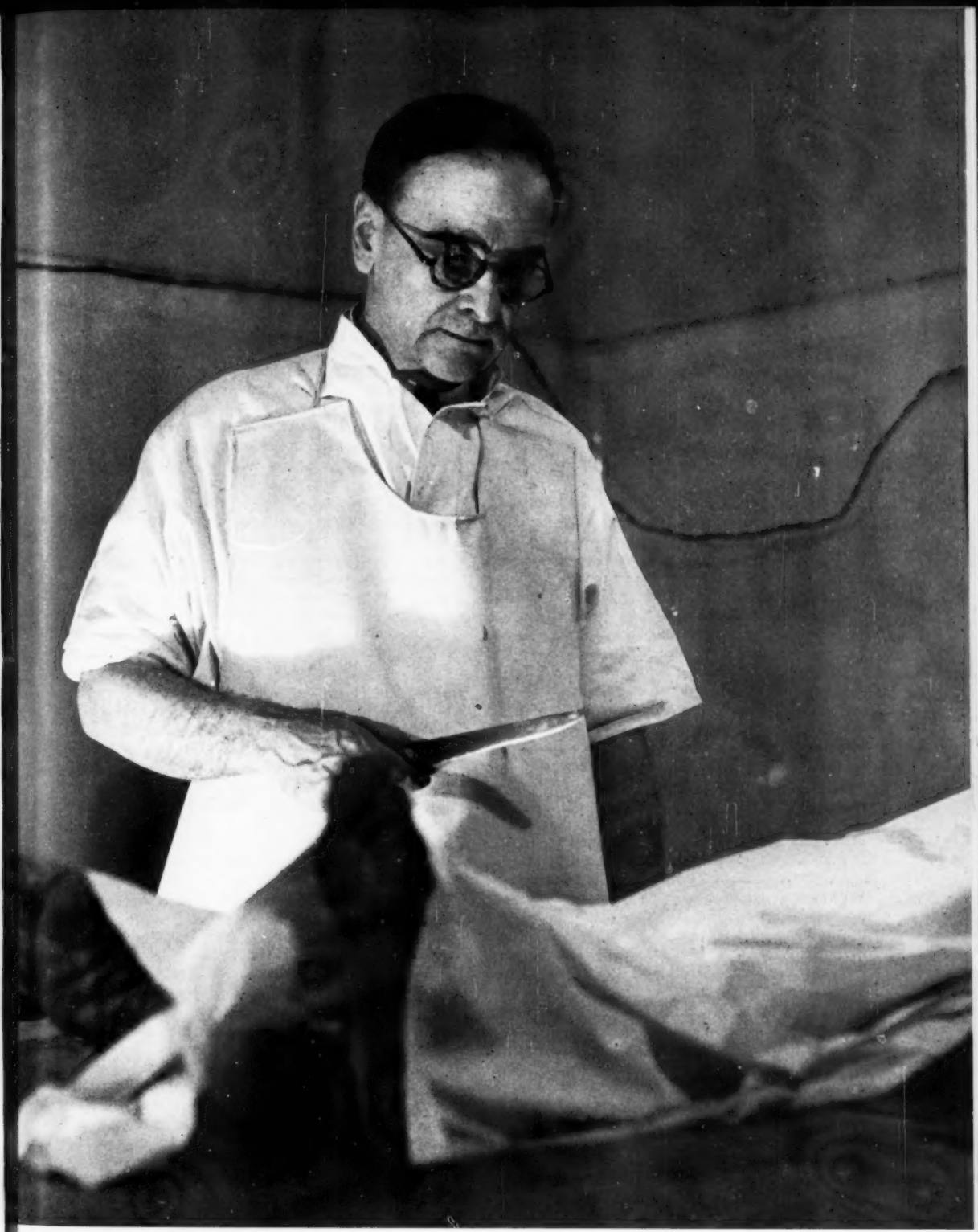
Murders are the most dramatic part of the work in the Chief Medical Examiner's office, but they form only 2 per cent of the cases handled. By law, the office has jurisdiction over "bodies of persons dying from criminal violence, by a casualty, by suicide, suddenly when in apparent health, when unattended by a physician, or where an application is made pursuant to the law for a permit to cremate the body of a person." The last provision is necessary because it is almost impossible to determine the cause of death after cremation; metallic poisons may survive, but they are contaminated by metals in the coffin, which is usually burned with the body.

In an average year, Dr. Gonzales' office handles 16,000 cases out of total deaths of 80,000 in New York City; autopsies are performed on about 25 per cent or 4,000 of these cases; homicides average about 400, and practically all of them are autopsied. An important aspect of fixing the cause of death in nonviolent cases is determining whether a man or woman died from natural causes or from factors connected with employment and so covered by workmen's compensation insurance.

Dr. Gonzales, who uses medicine to further justice, must foster a professionally suspicious attitude at all times. A seeming natural death may be a suicide, a suicide a murder; an accidental death may turn out to be a suicide because the man who killed himself may have thoughtfully kept in mind an insurance policy that would pay his family double for accidental death. An 84-page blue-covered booklet that Dr. Gonzales wrote for the benefit of his medical examiners, called "Manual of Procedures and Rules and Regulations of the Office of Chief Medical Examiner of the City of New York," gives frequent warnings. For example:

> "In hanging cases, the examiner must consider the possibility of murder and the suspension of the body to simulate suicide. Such lesions as scratch marks on the neck which were obviously not caused by the sliding of the ligature should lead the examiner to doubt the authenticity of the hanging and to order a further investigation and autopsy. Sometimes a body found hanging is cut down and the examiner is given a plausible history of a natural death to conceal a suicide. In such cases the presence of the post mortem lividity of the lower extremities should create the suspicion of hanging. . . . In all doubtful suicides it is best to treat them as suspected homicides until proven otherwise."

The advice in the blue booklet is addressed by doctor-detective Gonzales to the 77 workers in his department. Three of them are deputy chief medical examiners, 20 are medical examiners; the others are laboratory technicians, clerks, stenographers, etc. The budget for the whole office, which covers New York's five boroughs (Manhattan, Bronx, Brooklyn, Queens, Staten Island), is $325,000 a year. Dr. Gonzales directs the whole operation



(Photos by Walter Sanders from BLACK STAR)

"Something to get his hands on"

from his office at 125 Worth Street in lower Manhattan, in the gray stone building of Health, Hospitals and Sanitation. His green-walled office is plainly furnished—two bookcases, a desk, chairs, and a painting of the late Dr. Charles Norris, the first Chief Medical Examiner of New York City and Dr. Gonzales' only predecessor as C.M.E.

DR. Gonzales has been in the medical examiner's office almost since its beginning, January 1, 1918, when the present system replaced the county coroners. He was born in New York on April 21, 1878. His father, a Cuban of Spanish parentage—a dentist who later went into the wholesale tobacco business—died when Gonzales was 8 years old; his mother was born in this country. The father had always wanted his son to study medicine, and Gonzales never thought much about any other career. His early education came from preparatory schools and private teachers in New York. Then he passed the State Regents' examination for admittance to Bellevue Hospital Medical College, now affiliated with New York University. He was graduated in 1898, and after a two-year internship began to practice medicine in 1901, and continued until 1915. But he found himself drawn steadily toward the hard realities of pathology.

In 1906 Dr. Gonzales took over the pathologic laboratory at Harlem Hospital, then under the jurisdiction of Bellevue Hospital, where Dr. Norris was head of all the hospital's laboratories. He taught pathology, as associate professor, at Fordham University and New York Medical College, finally took the examination for medical examiner under the law replacing the coroner system that was passed in 1915. Dr. Norris, the first C.M.E., appointed him as assistant medical examiner on February 16, 1918, after he had successfully passed the examination. In 1925 he took the tests for deputy chief medical examiner, and was appointed to that post by Dr. Norris. Dr. Norris died September 11, 1935, and the late Mayor LaGuardia named him acting Chief Medical Examiner. Then, on July 21, 1937, LaGuardia appointed him to the permanent position he now holds.

All employees in the department, from Dr. Gonzales himself down through the ranks to laboratory cleaners, are under civil service. The medical examiner's office is thus completely independent, responsible only to the Mayor of New York. It gives reports to the police and district attorney's office in cases involving violent or suspicious deaths, but it is not a part of either department and so is free from any kind of pressure, political or administrative. If Mayor O'Dwyer, for instance, should want to remove Dr. Gonzales, he would have to present charges in writing before the civil service commission. The result is that one of the medical examiners testifying in court is a "medical witness," speaking as a medical man and not as a politician. He does not have to care where the pathologic chips may fall.

Most of Dr. Gonzales' time is now spent in administrative work, but he still performs two or three autopsies a month; before he became chief, he would perform as many as 300 a year and supervise 200 more. He still appears occasionally as a witness in court. He is on call twenty-four hours a day, seven days a week, and has a specific tour of duty at night once a week. Whenever he goes out in the evening, and it is seldom, he leaves word with the office where he can be reached, and if there is a night call—he is summoned on all cases that promise to be unusual or important—he is driven to the scene by a police car.

He lives in a four-and-a-half room apartment in the Washington Heights section of New York with his wife; they celebrated their 50th wedding anniversary last year. They have two children, both boys, neither of them a doctor, and three grandchildren. His only hobby now is photography, and he uses four cameras; he used to enjoy fishing and traveling, but he has found almost no time for vacations since he has been C.M.E. The favorite photographic subjects of this expert in sudden death are landscapes; he is especially proud of 500 feet of Niagara Falls in color on 16-millimeter film. He also likes to photograph flowers in color and to take portraits, especially of the grandchildren. He spends most of his evenings reading, including in his diet an occasional detective story. He enjoys reading medical books, but also reads travel books, and sometimes turns to his collection of Hawthorne, Mark Twain, and Poe. Poe, he thinks, wrote detective stories that are pathologically convincing. He has a television set and watches it once in a while; some of the shows, he says, are "awful," and some "pretty good." He rarely goes to the theater or movies. He smokes three or four cigars a day, usually in a holder, plus a pipe now and then.

About the only traveling he does now is on business; to deliver a paper on his specialty before a medical society in order to "spread the gospel" of the medical examiner's system, or to perform a special autopsy. Not long ago he was called to Charleston, South Carolina. A sailor who had been beaten up in one of the frequent National Maritime Union rows in New York had died at sea, and the authorities where the ship put in did not want to handle the case. Dr. Gonzales went down with an assistant district attorney. It developed that the seaman had died from natural causes. Dr. Gonzales, after performing the autopsy, took advantage of the opportunity to see Fort Sumter and Charleston's magnolia gardens.

On an average day, Dr. Gonzales is driven from his home by a city chauffeur, in a car with the

proud emblem "C.M.E." on the front, to the grim red-brick Morgue connected with famed Bellevue Hospital. Each of the five boroughs has its own morgue, but the scientific laboratories are centralized in the Bellevue Morgue, which covers Manhattan. There, in the morgue proper in the basement, is a part marked "Floaters Only in This Section"—for bodies found in the waters of Manhattan. There is also a special room for the bodies of dead babies. All corpses are kept in their individual ice boxes at temperatures ranging from 30 to 36 degrees.

At the Morgue, Dr. Gonzales may perform an autopsy, supervise one, or check up on laboratory procedures. The scientific laboratories—for toxicology, histopathology, serology—and the autopsy rooms are well equipped but crowded into quarters the C.M.E.'s office shares with Bellevue. The laboratories can answer such questions as whether bits of flesh are human or animal, what the blood grouping is (often important if stains are found on weapons), identification of poisons, the amount of alcohol in blood and vital organs, the amount of carbon monoxide in the blood, whether an individual found in water died from drowning, etc.

Modern drug chemistry has made the pathologist's job harder, although it has made the patient's life easier. Among the most delicate tests are those for detecting some of the newer synthetics, which elude ordinary chemical analysis. Among them are: carbromal, a sedative and analgesic; dilantin, used in the treatment of epilepsy; dolophine and demerol, analgesics; procaine and benzocaine, local anesthetics; curare, the arrow poison used to relax muscles during operations, and scopolamine, sedative and anesthetic; and such combinations of drugs as amytal and seconal, phenacetin and caffeine. These are detected by the infra-red absorption process, or spectrophotometry. The same laboratory also houses a densitometer, which produces tracings from the spectrograph; the tracings have helped convince many a jury in doubtful cases.

By 1951 or 1952 Dr. Gonzales hopes to have a better building in a new Institute of Forensic Medicine, as part of the Bellevue-New York University Medical Center, now under construction. The present Bellevue Morgue also houses the "Museum of the Office of the Chief Medical Examiner," which has a collection of some 2,000 photographs, preserved specimens, weapons from ice picks to razor blades used in murders, neckties used in stranglings, etc. One unexplained curiosity: a silver half dollar found in the throat of a man killed by an automobile. It is the largest collection of specimens relating to forensic medicine in the country.

Dr. Gonzales, slightly built, dapper and with a white handkerchief carefully folded in his breast pocket, routinely reaches his downtown office from the Morgue around noon. He usually answers his own phone, which rings constantly, and rarely goes out for lunch; unless there is an official city affair he has a sandwich at his desk. He eats a hearty breakfast, and explains that if he eats a full-sized lunch he has no appetite for dinner and his wife jokingly complains that he does not like her cooking.

Right now Dr. Gonzales is busy preparing a revised edition of his "Legal Medicine and Toxicology," first published in 1937. It is the standard work in its field; he wrote it with two pathologists who are now his deputies, Drs. Morgan Vance and Milton Helpern. He has also written numerous papers on his specialty, among them "Alcohol and the Pedestrian in Traffic Accidents," in collaboration with Dr. Alexander O. Gettler, which appeared in the Journal of the American Medical Association November 1, 1941.

As a change in pace, Dr. Gonzales wrote an introduction for a collection of detective stories, just published, called "Diagnosis Homicide: The Casebook of Dr. Coffee," written by Lawrence G. Blochman. In the introduction he says tolerantly of the fictional homicides: "While no comparable cases may be found in the literature of forensic medicine, nevertheless, such poisonings are plausible and may have been unrecognized in the past." Blochman's hero is a hospital pathologist. Dr. Gonzales feels that the hospital pathologist usually has a much easier job than the medical examiner. The medical examiner often has no case history to use as a guide. Bodies are found in rooming houses, on vacant lots, in the rivers, not only with no previous history or laboratory reports, but even with no identification or data on age. But he has to fix the cause of death, give clues to identity.

Such problems are one of the reasons why Dr. Gonzales is an ardent advocate of the nonpolitical medical examiner system as against the elected coroner, who is usually untrained for the job; the law may not require the coroner to be a doctor, let alone a pathologist, and he may often be subjected to political pressure. In New York City, a medical examiner must be both a pathologist and microscopist. Requirements for competing in the civil service examinations for the post include: graduation from an approved medical college with the degree of M.D., two years of internship in an approved hospital, including six months as a pathologist and an extra year as resident or assistant pathologist in a hospital with "adequate material"; performance of at least 150 autopsies.

As an example of the way an untrained coroner may mishandle a case, Dr. Gonzales tells the story of the missing undertaker. Some years ago, the undertaker was seen walking along a road toward his bungalow on Long Island, carrying what seemed to be a milk bottle. That night the bungalow

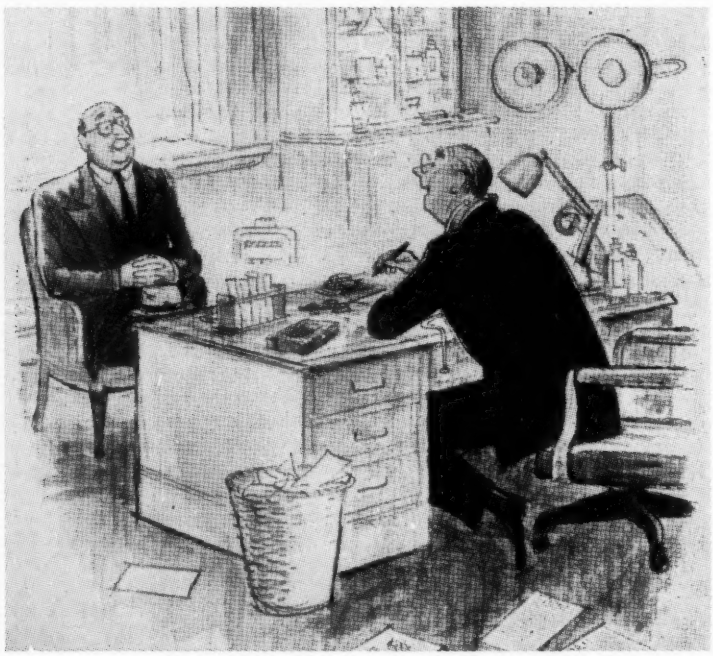
burned down, and a body was found in the ruins. The coroner decided that the undertaker had burned to death in the fire and "signed out" the case. But an insurance company investigator was not satisfied, wondered if the milk bottle had not contained gasoline, and called in a pathologist. It was determined that the dead man had not died in the fire. He had died of pneumonia: there was no soot in his trachea, no carbon monoxide in his blood. Furthermore, it was found that the body had been embalmed before burning and that the dead man was considerably taller than the missing undertaker. Actually, the undertaker had run away, hoping to cover his traces and defraud the insurance company by the use of an already dead body.

In spite of what Dr. Gonzales considers the inefficiency of the coroner system, about 90 per cent of the jurisdictions of the country are handled by coroners. Notable exceptions, in addition to New York City, include Massachusetts, Virginia, Maryland; Westchester and Nassau counties in New York, and Essex County (Newark) in New Jersey. A really smart murderer would be well advised to stay out of the territory covered by medical examiners.

Because of his interest in detective stories, Dr. Gonzales has been made an honorary member of the Mystery Writers of America. He is a fellow of the New York Academy of Medicine and of the American Medical Association, a member of the New York County and New York State Medical Societies, of the American Association of Pathologists and Bacteriologists, the New York Pathology Society, the Medical Jurisprudence Society, and he is a diplomate in pathology.

Dr. Gonzales still finds time to teach three times a week at the New York University College of Medicine, where he is professor of forensic medicine. He spent his 72nd birthday at work as usual and has no plans for retiring. He will keep on working at his twenty-four-hour-a-day job, he says, "as long as I am functioning." As for the future, he reports solemnly in the blue booklet: "The effect on the human body of the detonation of an atomic bomb has little medicolegal significance at the present time." If the hydrogen bomb should prove to have medicolegal significance, Dr. Gonzales would be ready for it.

GEORGE R. BURNS



(Reproduced from PUNCH)

"There may possibly be a come-back from the Ministry—it's the first time I've prescribed a long sea voyage since the scheme started."

The Medical Bookman

POSTGRADUATE GASTROENTEROLOGY*

In December of 1948 the School of Medicine of the University of Pennsylvania offered a course in Gastroenterology to physicians. Attempting to provide a written record of the lectures and conferences the faculty recorded, transcribed, and edited the proceedings, and finally concluded that a task of such magnitude merited presentation to the entire medical profession. This volume is the result.

For the most part, the material covers recent advances and unresolved problems in this branch of internal medicine. Nevertheless, there is ample coverage of basic experimental, physiologic, biochemical, and pathologic concepts.

The majority of presentations are in the nature of symposia, the more formal of which are followed by a panel discussion or brief question-and-answer period. Colleagues in radiology, surgery, and the basic sciences participated in these discussions, and their contributions add much to the subject at hand. Three periods of well-selected case presentations and clinical conferences are included.

The first major division of the book deals with the esophagus. A chapter on pyrosis elaborates on the mechanism of neurogenic esophageal distension, and on the satisfactory results obtained by correction of faulty eating habits. Recent developments in surgery of the thoracic esophagus are discussed, adequately covering preoperative and postoperative care.

The next section is devoted to a detailed consideration of many aspects of gastric juice. Secretion, emptying, acidity, and peptic activity are all stimulated by parasympathomimetic drugs, except that following vagotomy, the anti-cholinesterases produce a "paradoxical response," inhibiting motor activity and not stimulating secretion and acidity. A short report on dibutoline notes that the drug may be useful in controlling the nocturnal secretion of ulcer patients.

In a well-written chapter Dr. Franklin Hollander discourses on gastric mucus and its possible relation to peptic ulcer and stomach cancer. The remaining two chapters in this section are devoted to gastric analysis procedures, with detailed discussions of the carbohydrate test meal, and the histamine, caffeine, and insulin tests. A study revealing the fallaciousness of the histamine test concludes that anacidity cannot be diagnosed unless the *p*H of the gastric secretion is at least that of mucus, which is 8.4.

The section entitled Gastric Neoplasms commences with a superbly-illustrated article on roentgen diagnosis. In a study of the cytologic method of diagnosis using 30 patients with gastric symptoms, malignant cells were found in all 9 cases of cancer of the stomach and esophagus.

An excellent chapter deals with the management of carcinoma of the stomach, emphasizing that achlorhydria, pernicious anemia, and gastric polyps are to be considered precancerous. Most patients with a gastric ulcer should be suspected of having carcinoma, and if clinical improvement does not follow two to three weeks' intensive medical management, surgical exploration should be seriously considered. Well-circumscribed tumors and neoplasms of the fundus and greater curvature generally carry a more favorable prognosis.

The exceedingly important discussion of peptic ulcer opens with a chapter emphasizing certain important roentgen diagnostic features. A short paper dealing with the nutritional status of the patient concludes:

> ". . . while there is little, if any, evidence that vitamin or protein deficiencies are of any etiologic importance in peptic ulcer disease, potential deficiencies may be more common than is generally appreciated and may be of some significance in the pathogenesis of complications of peptic ulcer."

An interesting study demonstrated greater buffering capacity of a casein hydrolysate mixture than that of the widely-accepted antacid, milk-cream preparations. Nevertheless the protein hydrolysate neutralization leaves much to be desired since a fairly marked secondary stimulation of acid gastric secretion routinely occurs. In sharp contrast to the beneficial effects noted in the therapy of experimental animal ulcers the results of treatment of human peptic ulcers with intestinal and urinary extracts have not been encouraging. Dr. Arthur M. Schoen presents a superb dissertation on the effect of vagotomy on human gastric secretion, concluding:

> "Complete vagotomy abolishes the nervous phase of gastric function. It also reduces, but does not

*Postgraduate Gastroenterology—As presented in a course given under the sponsorship of the American College of Physicians in Philadelphia, December 1948: Edited by Henry L. Bockus, M.D., Professor of Gastroenterology, University of Pennsylvania Graduate School of Medicine. 670 pages with 258 figures. Philadelphia and London, W. B. Saunders Company, 1950. $10.00.

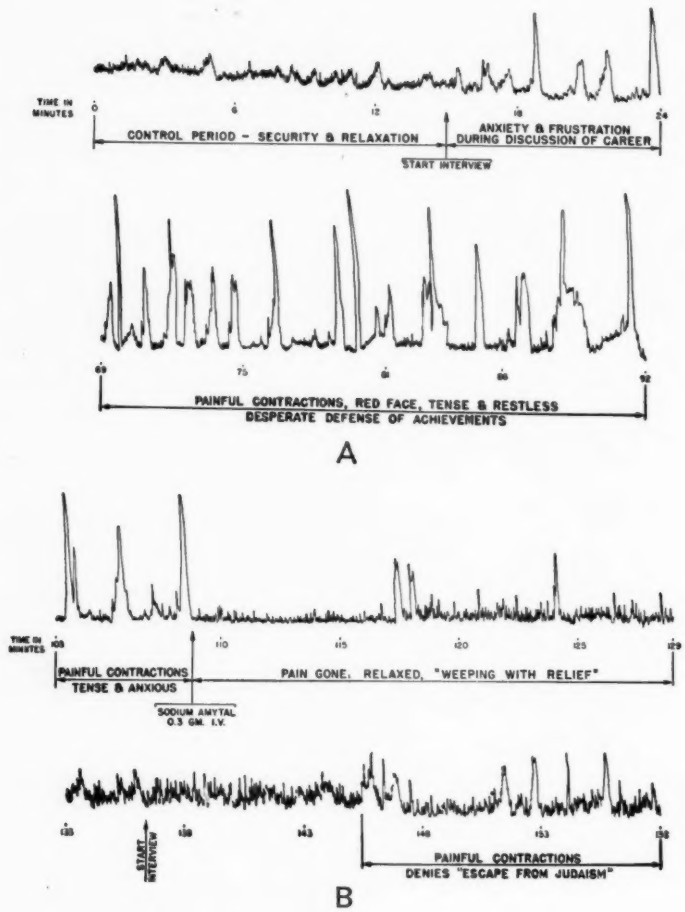


FIGURE 132. Hypermotility of the stomach associated with epigastric pain in a subject with peptic ulcer during discussion of relevant personal conflicts.

abolish, the humoral phases as evidenced by a lesser response to histamine, an Ewald meal or the injection of meat extract into the intestine. The average basal secretory and emptying rates are each reduced by about 50 per cent. Acidity and peptic power of the basal secretion are reduced even more, suggesting that vagotomy produces a greater depression of the acid and pepsin secretions than of the neutral or alkaline secretion. Complete vagotomy produces a depression of basal function in response to insulin hypoglycemia as shown by a decrease in the secretory and emptying rates and a decrease in the amount of acid and pepsin secreted."

Balloon-kymography and roentgenoscopy demonstrate that a "complete" vagotomy can effectively abolish gastric peristalsis and result in retention. Postvagotomy motor disturbances may be effectively treated with urecholine.

Drs. Ravdin and Bockus present the surgeon's and internist's points of view on the status of vagotomy. They both conclude that, save in marginal ulceration, the procedure will be used less frequently and that the results of a long follow-up will reveal the superior operation to be an adequately performed gastric resection.

A lucid concise paper by Dr. L. K. Ferguson sets forth the indications for surgery, the technic of subtotal gastric resection, and the results employing this procedure.

The mechanism of the "dumping" syndrome is ascribed to distention of the jejunum by fluid which enters the gut from the blood stream in an attempt to dilute a hypertonic solution resulting when various foodstuffs possessing osmotic properties are eaten. Measures for preventing symptoms in patients with the "dumping" syndrome include:

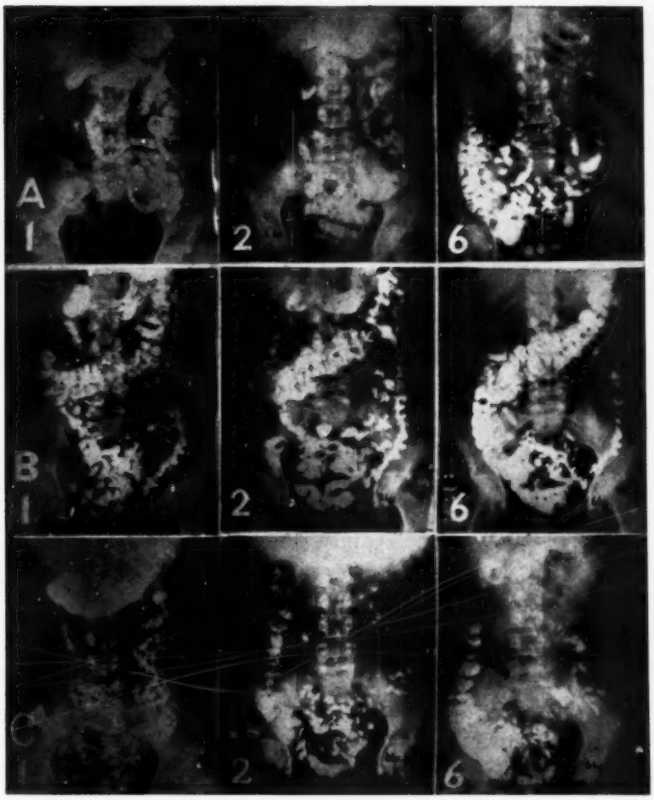


FIGURE 146. Roentgenograms of patient (I.H.) hypersensitive to egg and pork. Row A—barium and water. Row B—barium, water, and egg. Row C—barium, water, and pork. Narrowing, segmentation, and scattering in Rows B and C.

(Illustrations from "Postgraduate Gastroenterology")

"1. The patient eats only nonliquid food materials during the meal. Fluids are taken between meals.

"2. If he wishes to eat a full course meal (as when invited out, etc.) he takes atropine gr. 1/50-1/100, about one-half hour before the meal and takes a chance on not being able to use his eyes for close work for a while thereafter."

The next major section is entitled "Application of Neuropsychiatry to Gastrointestinal Problems." Dr. Stewart Wolf, in an extensive chapter on the relation of emotional changes to physiologic disturbances, concludes that ". . . most of the levels of the gastrointestinal tract are likely to participate in the human organism's reaction patterns to threatening events in the life situation, including those threats which arise out of problems of interpersonal adjustment. It further appears that changes of hyperfunctioning with associated muscular overactivity, hyperemia and changes in local secretions, at first altogether functional and transitory, may, when unduly sustained, lead to structural damage and disease." This is followed by Dr. Edward Weiss' discussion of psychosomatic diagnosis and treatment. Dr. Bockus concludes with: "I have never previously heard a talk which had such an important message for the gastroenterologist as that of Dr. Weiss. I wish that these messages from Doctors Weiss and Wolf could be broadcast throughout the length of this land."

A valuable chapter is also included on functional gastrointestinal disturbances in psychotic reactions. The section is concluded by a paper attempting to relate alimentary aberrations to emotional activity of the central nervous system on a sound physiologic basis.

A short section dealing with secondary gastrointestinal disorders commences with an informative presentation of allergic phenomena in the digestive tract. An illuminating article covers the x-ray manifestations of food hypersensitivity and emphasizes that the changes are noted only in the small bowel and not in the stomach (Figure 146).

An excellent review of fundamental physiology initiates the portion of the book devoted to the pancreas. Serum amylase and lipase determinations are discussed in relation to the diagnosis of pancreatic and other disorders. In evaluating pan-

creatic function one may employ hormonal or secretin action as measured by the volume of secretion and the bicarbonate concentration, or parasympathetic (or urecholine) action characterized by an increase in enzyme content. Discussing acute pancreatitis Dr. Bockus reviews certain features in the diagnosis, as elevated serum enzyme tests, hypocalcemia, and electrocardiographic changes. Treatment is directed toward relieving pain, combatting shock and dehydration, and avoiding hormonal and nervous stimulation of the pancreas. The diagnosis of cancer of the pancreas is dealt with in a scholarly chapter containing considerable statistical analysis.

A brief symposium is presented covering the mechanism and diagnosis of abdominal pain. Surgical relief for intractable pain includes paravertebral block, rhizotomy, chordotomy, and unilateral prefrontal lobotomy.

The next major section, The Liver, opens with papers evaluating liver biopsy and hepatosplenography. A concise discussion of virus hepatitis yields ". . . (it) may be spread by the intestinal-oral route and may be prevented by passive immunization with gamma globulin." Evaluating flocculation tests, Dr. Neefe states that the *strongly positive* thymol test is perhaps the most helpful single aid in differential diagnosis as it is very *infrequent* in extrahepatic obstructive jaundice; however, where the tests are used primarily to detect hepatic injury, the cephalin cholesterol test will yield more positive responses when applied to all types of hepatic disturbances than will the thymol test. Surgical procedures for portal hypertension include portacaval shunt, splenorenal shunt, and simple splenectomy; the position of the block should be accurately localized in order to determine which procedure is indicated.

Chronic nonspecific enteritis and entero-colitis are considered as the next major subject. Following a detailed consideration of the roentgenographic features, a conservative article on surgical management advises ". . . that surgical intervention should be confined to those cases complicated by obstruction, abscess or fistulas, and those in which a most thorough medical regimen has failed."

A symposium on intestinal obstruction acquaints the reader with the latest advances in the problem. An exhaustive article dealing with the biochemical aspects of the condition lists the following as the chief abnormalities:

1. Deficiency of osmotic factors.
2. Alkalosis resulting from expansion of plasma bicarbonate.
3. Hypochloremia.
4. Kidney disability and hyperazotemia.
5. Anhydremia.

The incident hypopotassemia, its pathogenesis, and its reflection in the electrocardiogram are next considered. Finally the various aspects of the management of intestinal obstruction are elucidated.

A section on current problems of diagnosis and therapy is introduced by a comprehensive discourse on the stimulants and depressants of sympathetic and parasympathetic ganglion cells, and of the postganglionic receptor substances of these two components of the autonomic nervous system. An illuminating consideration of the differential diagnosis of jaundice emphasizes the importance of the passage of time in the evolution of the pathologic process. "But there is no hurry about making a diagnosis of jaundice early, there is no rush about subjecting the patient to an operation for the purpose of diagnosis, there is no need to fear that something terrible will happen if the jaundice persists for a period of two or three weeks or more while we are watching the patient."

In a consideration of chronic ulcerative colitis, experimental work on dogs discloses an increased lysozyme content of the stool over the normal value. This bacterial enzyme produces superficial mucosal necrosis, hence it is not surprising that antilysozyme therapy of chronic ulcerative colitis with sodium hexadecyl sulfate and nisulfazole has been beneficial in most instances.

A study on nitrogen metabolism in ulcerative colitis reports that although the disease is not primarily a manifestation of protein-deficiency, a positive protein balance may be a necessary requisite to clinical remission. Complications of ulcerative colitis requiring immediate surgery are obstruction, perforation, and uncontrolled bleeding. Prompt elective surgery is required for: (1) polyposis, (2) granuloma formation, (3) neoplasm, (4) fistulas and sinuses, and (5) intractable secondary complications as arthritis, iritis and dermatitis. Lastly, the promise of vagotomy in chronic ulcerative colitis is discussed in the light of Dennis' recent work.

The final major topic in the volume is entitled "Carcinoma of the Colon." The roles of sigmoidoscopy and x-ray diagnosis are discussed, as well as the principles of surgical management of large bowel cancer.

Supplementing the papers are three groups of case presentations wherein extemporaneous discussion by the authorities yields answers to numerous current perplexing questions. Illustration is sparse, save for the roentgenologic demonstrations.

"Postgraduate Gastroenterology" is truly an advanced treatment of this subspecialty, yet the basic fundamentals are nowhere neglected. This volume represents a compilation of the essential present-day concepts of gastroenterologic medicine and surgery assembled by an illustrious staff under the editorship of one of the country's foremost scholars in the field.

N. S.

New Books Received

► AN ATLAS OF AMPUTATIONS - - -

By Donald B. Slocum, M.D., M.S., Orthopedic Surgeon, Sacred Heart General Hospital, Eugene, Oregon; Branch Consultant in Orthopedic Surgery, U. S. Veterans Administration; Formerly Chief of the Amputation Section, Walter Reed General Hospital, Washington, D. C. 562 pages, with 564 illustrations. 1949, C. V. Mosby Company, St. Louis. $20.00.

Stressing the various levels of amputation where best functional results are obtained, and the opinion that a surgeon's obligation continues after the closure of the wound until a satisfactory prosthesis is fitted, the author presents a comprehensive volume on the present status of amputation surgery.

Included in this book are academic descriptions of the operative procedures already well established in addition to a vast amount of recent knowledge garnered from the amputation centers during the past war. It is well known that successful restoration of an amputee is predicated on a painless stump well adapted to present-day artificial limbs. A detailed study of the normal and amputee gait, various prostheses, physical medicine and rehabilitation, and even a portion devoted to the participation of the amputee in sports makes this book unique in its valuable contribution.

The introduction of the most recent suction socket prostheses which obviate the use of shoulder straps, pelvic belts, hip joints, and allow direct control of the limb with greater freedom of motion is pertinent. However, the author warns against the use of this type of prosthesis in which the artificial limb is retained in place by a negative pressure chamber unless the stump is ideal in length with no important soft tissue dysfunction to mar its use. Since their use has been for such a limited period in this country, an accurate evaluation is not as yet forthcoming.

Comprised of four main topics under the headings of orientation, surgical considerations, surgical technics, and convalescent period, the entire study is proffered in a concise, easily readable manner. Featured by a remarkable series of superior photographs illustrating the basic knowledge of locomotion in the normal and the amputee along with descriptive drawings and representations of surgical procedures, this atlas renders an important contribution to the advancement of the entire realm of detruncation surgery.

H. O'P.

► CURRENT THERAPY 1950 - - -

Latest approved methods of treatment for the practicing physician. Editor: Howard F. Conn, M.D. Consulting Editors: M. Edward Davis, Vincent J. Derbes, Garfield G. Duncan, Hugh J. Jewett, William J. Kerr, Perrin H. Long, H. Houston Merritt, Paul A. O'Leary, Walter L. Palmer, Hobart A. Reimann, Cyrus C. Sturgis, Robert H. Williams. 736 pages. W. B. Saunders Company, Philadelphia and London, 1950. $10.00.

Continuing the successful pattern established in the 1949 volume of "Current Therapy," this year's edition again offers a comprehensive collection of authoritative discussions on treatment. Starting with the premise that in each instance the diagnosis has already been established, each contributor briefly states his preferred method of treating the disease he covers. In some instances, methods of more than one authority in the field are presented, but the editors carefully refrain from indicating any preference as to the method to be employed.

Sixteen new subjects have been added this year and all the material from the first volume has been re-examined and revised where necessary. The text is divided into 15 major sections under such headings as The Infectious Diseases, Diseases of the Respiratory System, Diseases of the Cardiovascular System, etc., and each section is further subdivided according to disease entities.

With its attractive format and encyclopedic content, the book should prove a convenient reference on treatment for the practicing physician. A. E.

► PHYSIOLOGY IN HEALTH AND DISEASE - - -

By Carl J. Wiggers, M.D., F.Sc., F.A.C.P., Professor of Physiology and Director of Physiology Department, School of Medicine, Western Reserve University, Cleveland. Ed. 5. 1,242 pages, with 280 illustrations. 1949, Lea & Febiger, Philadelphia. $10.00.

The continuing contributions to modern human physiology have permitted few of the technics and concepts to remain immutable. Since the appearance of the first edition of this book in 1934, this science has felt the impact of many innovations and explosions of myths. The author has kept pace, and in this, his fifth edition, evinces the same thoroughness and clarity that have characterized these volumes since the first one was published.

Much new material in basic physiology is included, especially with reference to muscle contraction, dynamics of urinary secretion, blood flow through special organs such as liver, heart, lungs, spleen, brain, kidney, etc. There are new or revised discussions of subjects of special clinical concern, always an outstanding feature of this text. These include edema, hypertension, peptic ulcer, coronary occlusion, diabetes, fever, and even psychosomatic reactions.

N. S.

► THE DEVELOPMENT OF GYNAECOLOGICAL SURGERY AND INSTRUMENTS - - -

By James V. Ricci, M.D., Clinical Professor of Gynaecology and Obstetrics, New York Medical College; Attending Gynaecologist, City Hospital, New York; Consultant in Gynaecology and Obstetrics, Beekman-Downtown Hospital; Director of Gynaecology and Obstetrics, Columbus Hospital. 594 pages, illustrated. 1949, The Blakiston Company, Philadelphia & Toronto. $12.00.

In this new text Dr. Ricci has recorded a detailed account of the history of gynecologic surgery and instruments from the time of Hippocrates to the antiseptic age. The subject matter is well documented with references at the end of each chapter and is liberally illustrated throughout the text with photographic reproductions, etchings, and woodcuts obtained from historical sources.

The author's research has yielded a vast amount of factual data which have been assembled according to historical periods, establishing wherever possible the rights of priority of individuals in the performance of new procedures. For those interested in the historical background of surgery and gynecology, Dr. Ricci's contribution should be avidly accepted.

M. B. S.

Books received will be acknowledged in this department each month. As space permits, books of principal interest to our readers will be reviewed more extensively.

Handbook of Physical Medicine and Rehabilitation. By The Council on Physical Medicine and Rehabilitation of the American Medical Association and 29 Contributors. 573 pages, with 56 illustrations and 25 tables. 1950, The Blakiston Company, Philadelphia & Toronto. $4.25.

Clinical Nutrition. Edited by Norman Jolliffe, M.D., F. F. Tisdall, M.D., and Paul R. Cannon, M.D. For the Food and Nutrition Board of the National Research Council. 925 pages, with 78 tables and 127 illustrations, 61 in full color. 1950, Paul B. Hoeber, Inc., New York. $12.00.

Clinical Pathology; Application and Interpretation. By Benjamin B. Wells, M.D., Ph.D., Professor of Medicine, University of Arkansas School of Medicine, Little Rock, Arkansas. 397 pages, with 32 figures. 1950, W. B. Saunders Company, Philadelphia & London. $6.00.

1949 Year Book of Physical Medicine and Rehabilitation. Edited by Frank H. Krusen, M.D., Professor of Physical Medicine, Mayo Foundation; Head of the Section on Physical Medicine, Mayo Clinic, and Howard A. Rusk, M.D., Professor of Physical Medicine and Rehabilitation, New York University College of Medicine; Chairman of the Department of Physical Medicine and Rehabilitation, Bellevue Hospital, New York City. Associate Editors: Earl C. Elkins, M.D., Winfred Overholser, M.D., and George G. Deaver, M.D. 456 pages, with 131 figures. 1950, Year Book Publishers, Inc., Chicago. $5.00.

Proctology in General Practice. By J. Peerman Nesselrod, B.S., M.S., M.Sc. (Med.), M.D., F.A.C.S., F.A.P.S., Associate in Surgery, Northwestern University Medical School; Associate of Surgical Division of Proctology, Evanston Hospital, Evanston, Ill. 276 pages, with 64 figures. 1950, W. B. Saunders Company, Philadelphia & London. $6.00.

Electrocardiography; Fundamentals and Clinical Application. By Louis Wolff, M.D., Visiting Physician, Consultant in Cardiology and Chief of the Electrocardiographic Laboratory, Beth Israel Hospital; Associate in Medicine, Harvard Medical School. 187 pages, with 110 figures. 1950, W. B. Saunders Company, Philadelphia & London. $4.50.

Medical State Board Questions and Answers. By R. Max Goepp, M.D., Formerly Professor of Clinical Medicine, Graduate School of the University of Pennsylania, and Professor of Medicine, Woman's Medical College of Pennsylvania; and Harrison F. Flippin, M.D., Associate Professor of Medicine at the Graduate School of the University of Pennsylvania. New, 8th edition. 663 pages. 1950, W. B. Saunders Company, Philadelphia & London. $7.00.

Consultation Service

This special consultation information service is offered as a regular monthly feature of *Postgraduate Medicine*. Subscribers are invited to call on this Service for answers to difficult medical problems from members of our Editorial Board and our Editorial Consultants best qualified to help. Each question will be answered by mail and those of general interest will be published each month. Address all communications to Consultation Service, *Postgraduate Medicine*, 516 Essex Building, Minneapolis 3, Minnesota.

DIABETES SYMPTOMS FOLLOWING FRACTURE

QUESTION: I have a female patient, age 59, married, occupation housewife, who came under my care because of a fall on the ice. After her admission to the hospital, x-rays revealed a fracture of the right radius and ulna. X-ray of the right thigh showed no bony pathology, although there was a severe contusion of that member. The patient was admitted to the hospital late in the evening. Urinalysis the following morning revealed a 2 plus sugar. A glucose tolerance test was done on February 8, two days afterward, with the following results:

One-half hour following intake of glucose	130 mgm.
One hour following	284 mgm.
Two hours after	263 mgm.
Three hours after	160 mgm.

A urine specimen taken at the same time was negative for sugar. The patient weighs 120 pounds. She has not at any time had an excessive appetite; there has been no loss of weight, no excessive thirst, no excessive urination, and she has been able to do her housework without any discomfort. Since she returned home from the hospital, she has been making daily tests with the Clinitest for sugar. All of these tests thus far have been entirely negative for sugar. I have put her on a diet, but she is not receiving any insulin whatever. On the basis of the findings in the glucose tolerance tests, I think that she was suffering from diabetes.

What suggestions have you to offer with reference to treatment? How long should her diet be restricted and how often should the glucose tolerance test be repeated? Any suggestions you may wish to offer will be greatly appreciated.

M.D.—Michigan

ANSWER: Both the value for fasting blood sugar of 130 and the sugar tolerance curve are characteristic of diabetes mellitus. There have been many references which can be found in standard textbooks on diabetes to the frequency with which diabetes is first discovered at the time of a fracture. While this observation has been corroborated many times, it has not been well understood until more recent years, as a result of the work of Selye and others who have emphasized the disturbances of the glands of internal secretion produced by trauma. Pertinent references may be found in:

Joslin, E. P., Root, H. F., White, Priscilla, Marble, Alexander, and Bailey, C. C.: The Treatment of Diabetes Mellitus. Ed. 8, Philadelphia, Lea & Febiger, 1946, 861 pp.

Wilder, R. M.: Clinical Diabetes Mellitus and Hyperinsulinism. Philadelphia, W. B. Saunders Company, 1940, 459 pp.

Selye, Hans: Textbook of Endocrinology. Montreal, University of Montreal, 1947, 914 pp.

Fortunately, the condition of this woman can be controlled simply by the qualitative restriction of carbohydrates in her diet. In most instances insulin is not necessary. It should be added that sometimes the evidence of diabetes mellitus disappears, but any patient who has had these signs and symptoms should be kept under observation. An occasional determination of the value for fasting blood sugar will be useful; sugar tolerance curves would not affect the advice.

ON THE TREATMENT OF PULMONARY TUBERCULOSIS AND BRONCHIECTASIS

QUESTIONS: (1) Is it considered an acceptable procedure to use lipiodol in pulmonary tuberculosis when bronchiectasis is suspected?

(2) Is it dangerous to give pneumoperitoneum to a patient with tuberculosis who is also suspected of having bronchiectasis? Would an abscess be a likely complication in such a procedure?

(3) Please indicate the beneficial features following thoracoplasty and list them in order of their importance if possible. In other words, do you feel collapse of the cavity to be more important than immobilization or immobilization more important than collapse of the cavity; or do you feel that the reduction in the oxygen supply to the tubercle bacillus is the most important factor in clearing up the infection?

M.D.—Wisconsin

ANSWERS: (1) It is an acceptable procedure to use lipiodol in pulmonary tuberculosis when bronchiectasis is suspected. There is probably some danger, however, if the case is in an acute phase and it is safer to wait until the patient is free of fever and the condition fairly well stabilized.

(2) It is my opinion that pneumoperitoneum should be avoided in a patient suspected of having bronchiectasis, since the procedure would probably do no good and there is some danger that interference with diaphragmatic functions would make it difficult for the patient to empty the dilated bronchi by coughing. It is doubtful that an abscess would develop, but this would be a possibility.

(3) I believe the collapse of the cavity is the most important feature of thoracoplasty. Thoracoplasty is utilized in patients in whom temporary collapse has failed or will probably fail because of the nature of the lesion. After the collapse of the cavity, it is important to keep the cavity-bearing part of the lung immobilized permanently to prevent recurrence of the disease. I doubt very much if reduction of oxygen supply to tubercle bacilli is the most important factor in clearing up the infection.

BRIAN BLADES

SENSITIVITY TO DESICCATED THYROID

QUESTION: Can a hypothyroid person be unable to take thyroid because of sensitivity? One patient states after seven days of daily doses of ½ gr. (P.D.), she feels mean and irritable.

M.D.—Ontario

ANSWER: Desiccated thyroid may have an excessive effect in some patients, particularly in cases of anterior pituitary or adrenocortical failure. It may at times cause dangerous cardiac embarrassment in instances of arteriosclerotic heart disease. An occasional patient with hypothyroidism may note a few untoward symptoms soon after beginning the use of desiccated thyroid. Ordinarily these disappear with consistent use when desiccated thyroid is indicated. True sensitivity of an allergic type to desiccated thyroid is virtually unknown.

E. PERRY MCCULLAGH

TREATMENT OF POSTMENOPAUSAL AND SENILE OSTEOPOROSIS

QUESTION: What specific therapeutic suggestions are offered for the treatment of postmenopausal and senile osteoporosis? Which of the steroids are recommended and what are the contraindications, especially in patients over 70 years of age? What dosages of calcium and vitamin D are advised in the "average" patient?

M.D.—Georgia

ANSWER: A number of estrogenic preparations are now in common use for the condition of postmenopausal and senile type of osteoporosis. These can be given orally or intramuscularly. For oral use diethylstilbestrol is administered in dosages of 0.5 to 1.0 mg. daily. The oral form is usually effective. Large dosages are not more effective than moderate dosages. The preparation must be given over a long period of time. For intramuscular injection alpha-estradiol benzoate is given once or twice weekly in doses of 1.66 mg. The preparation is marketed commercially under various trade names.

Overdosage may cause bleeding. Estrogenic substances are contraindicated where there has been a previous history of carcinoma of the breast or pelvic organs.

For the male patient the androgen or male sex hormone avoids impotence or other undesirable side effects encountered with the estrogens. The preparation is given in tablet form, as methyl testosterone, dissolved sublingually, in dosage of 10 mg. three times daily.

Calcium and vitamin D are given in capsules containing 7½ gr. of dicalcium phosphate and 330 units of viosterol. Three capsules daily are sufficient.

High protein diet has been recommended on the basis that this type of porosis represents a deficiency of osseous matrix rather than a simple depletion of calcium.

Other treatment procedures include the use of heat and the application of appropriate supports. Deep x-ray therapy occasionally relieves pain in the senile type of osteoporosis.

JOHN F. POHL

AMENORRHEA FOLLOWING PREGNANCY

QUESTION: I have a patient, female, age 32 years—only child born March, 1948. Normal delivery. Weight before pregnancy, 140 pounds; weight now, 147 pounds. Menses prior to pregnancy occurred every twenty-four to twenty-eight days, lasting four to five days. Menses absent since pregnancy. General condition good. Pelvic examination negative.

Thyroid attempted but poorly tolerated with no response. F.S.H. assay impossible to get here.

Several courses are open. Do nothing and let nature take its course, or try hormonal therapy. What are the chances of anovulatory menses following hormonal therapy? Reason for concern—further family desired.

Any suggestions as to treatment, etc., would be much appreciated.

M.D.—Nova Scotia

ANSWER: Before recommending therapy for this patient it would be well to know what the vaginal smears show—whether they are estrogenic or hypoestrogenic. It would also be of much help to perform a suction curettage for study of the endometrium to see whether it is atrophic or is being maintained in the proliferative phase.

In the absence of these facts, it might be best to try cyclic therapy, i.e. estrone sulfate (or its equivalent) 1.25 mg. tablets, two daily for twenty-five days, and for the last five days of this therapy, anhydrohydroxyprogesterone, 10 mg. three times a day should be added. A menstrual period should follow within forty-eight to seventy-two hours after cessation of therapy. If a menstrual period does not occur after the first course of therapy, the course should be repeated. If this therapy is then continued for several months it may be that ovulatory menstruation will be re-established.

ROBERT B. GREENBLATT

SENSITIVITY TO PENICILLIN

QUESTION: A graduate nurse has developed a sensitivity to penicillin. Even with extreme care, she comes in contact with her allergen and develops such a contact dermatitis that she is unable to work. Skin tests have shown a marked positive reaction to both penicillin in oil and aqueous solution.

Is there any method of desensitizing her so that she may remain at work?

M.D.—British Columbia

ANSWER: There is no way of hyposensitizing a patient sensitive to penicillin. If it were a condition due to the penicillium mold spore, hyposensitization would be possible. I am very sorry we are unable to suggest anything for you.

HARRY L. ROGERS

New Drugs *and* Instruments

Information published in this department has been supplied by the manufacturers of the products described.

BEVIDOX CONCENTRATE

PURPOSE: Treatment of various types of macrocytic anemias, including nutritional anemia, sprue (tropical and nontropical), and pernicious anemia.

COMPOSITION: Prepared by a fermentation process using a Streptomyces culture. Each cubic centimeter of solution is equivalent to 30 micrograms of crystalline vitamin B_{12}.

DOSAGE AND ADMINISTRATION: By subcutaneous or intramuscular route. Each microgram of activity in Bevidox Concentrate is equivalent to 1 U.S.P. unit of standard liver extract. Suggested dosage in treatment of pernicious anemia is 15 micrograms once or twice weekly until a maximum reticulocyte response is obtained. Maintenance dosage may be 15 to 30 micrograms every two to four weeks.

HOW SUPPLIED: In 5 cc. and 10 cc. multiple dose vials.

PRODUCER: Abbott Laboratories, North Chicago, Ill.

AVOSYL TABLETS

PURPOSE: Muscle relaxant.

COMPOSITION: Each tablet contains 0.25 gm. (250 gm.) 3-ortho-toloxyl-1,2-propanediol.

INDICATIONS FOR USE: As an aid in management of neuromuscular involvements.

DOSAGE AND ADMINISTRATION: Four tablets given three to five times daily.

HOW SUPPLIED: Bottles of 100 and 1,000.

PRODUCER: Schenley Laboratories, Inc., New York, N. Y.

TRIPLE SULFAS TABLETS

PURPOSE: Oral sulfonamide therapy.

COMPOSITION: Each tablet contains 0.167 gm. each of sulfadiazine, sulfamethazine, and sulfamerazine.

HOW SUPPLIED: In 0.5 gm. tablets, bottles of 100 and 1,000.

PRODUCER: Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

NUCLON

New Package Size

SMITH, KLINE & FRENCH LABORATORIES, Philadelphia, announce that Nuclon, antihistaminic head cold preparation, is now available in an additional package size: bottles of 500 capsules. There has been no change in formula. Each capsule contains thenylpyramine fumarate, 37.5 mg.; 'Dexedrine' Sulfate (dextroamphetamine sulfate, S.K.F.), 1.25 mg.; acetylsalicylic acid, 2.5 gr. Dosage has been revised, and is now as follows: Adults—one capsule every four hours for four doses daily. Children (5 to 12 years)—one capsule twice a day.

NEW PILLING STORAGE BATTERY

PURPOSE: Portable storage battery unit, weighing 16 pounds, for E.N.T. instrument lighting.

DESCRIPTION: Unit contains two 4-volt, 6-ampere non-spill storage cells in transparent plastic cases. Only one is used at a time. A rheostat allows regulation of brightness, and a quick change from one battery to other by the flip of a switch does not require any changes of the instrument light cord tips. Charge indicator shows condition of each battery, and unit includes a built-in charger. Operates on regular house current. Further information available from:

PRODUCER: George P. Pilling & Son Co., 3451 Walnut St., Philadelphia, Pa.

NEO-SYNEPHRINE* THENFADIL* NASAL SOLUTION

PURPOSE: Decongestant antihistaminic for intranasal administration.

COMPOSITION: Neo-Synephrine hydrochloride (levo-a-hydroxy-B-methylamino-3-hydroxy ethylbenzene hydrochloride), 0.25 per cent, and Thenfadil hydrochloride (N,N-dimethyl-N′-[3-thenyl]-N′-[2-pyridyl] ethylenediamine hydrochloride), 0.1 per cent in an isotonic buffered aqueous vehicle.

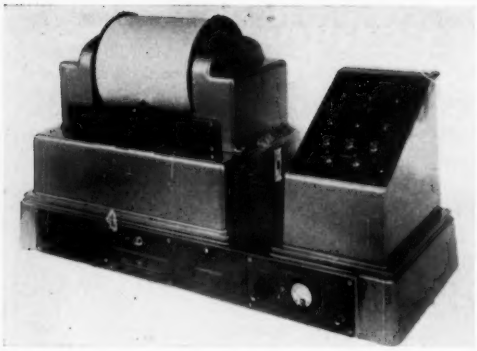
INDICATIONS FOR USE: Relief of congestion in the common cold, allergic rhinitis including hay fever, vasomotor rhinitis and sinusitis.

DOSAGE AND ADMINISTRATION: Application may be made by droplet instillation, atomizer or nebulizer (except those having metal parts), or tampon. Single application usually is from 2 or 3 drops to ½ dropperful of solution.

HOW SUPPLIED: Bottles of 1 ounce with dropper.

PRODUCER: Winthrop-Stearns, Inc., New York, N. Y.

*Trademarks.



MODEL 21 INFRARED SPECTROPHOTOMETER

DESCRIPTION: Double beam spectrophotometer records directly in percentage transmission against a linear wavelength scale on large, easily read charts. Its speed of scanning ranges from 3 minutes to 100 hours for the rock salt region. Time of response varies from a few seconds to more than a minute for full scale deflections. Overall range of the instrument is from less than 2 microns to 15 microns in the rock salt region.

Chart scales are uniform from 1 to 50 inches per micron. Chart size is about 32 inches by 11 inches. Instrument is 40 inches long, 22 inches high, and 20 inches wide. Amplifiers and power supplies are external.

PRODUCER: The Perkin-Elmer Corp., Glenbrook, Conn.

MASSE NIPPLE CREAM

PURPOSE: Treatment and prevention of cracked and fissured nipples of pregnant and nursing women, and massaging out of flat or inverted nipples.

COMPOSITION: Combines 9-amino acridine and allantoin, in a cream base. It is readily absorbed, nonstaining, emollient, and antiseptic.

HOW SUPPLIED: Individually boxed 1-ounce tubes.

PRODUCER: Ortho Pharmaceutical Corp., Raritan, N. J.

SULESTREX PIPERAZINE

PURPOSE: Synthetic, stable, water-soluble form of estrone for oral estrogenic therapy.

COMPOSITION: Each round, white, uncoated tablet contains 1.5 mg. of Sulestrex Piperazine, equivalent to 1.25 mg. of sodium estrone sulfate.

INDICATIONS FOR USE: Menopausal syndrome, postmenopausal conditions, postpartum breast engorgement.

CAUTION: Contraindicated for patients giving personal or family history of carcinoma or having precancerous lesions of breasts or genital tract.

DOSAGE AND ADMINISTRATION: Menopausal syndrome in most cases can be controlled with 1.5 mg. daily. For postmenopausal conditions, 1.5 to 4.5 mg. daily is adequate for most patients.

HOW SUPPLIED: In 0.75 mg. tablets, bottles of 100, and 1.5 mg. tablets, bottles of 25 and 100.

PRODUCER: Abbott Laboratories, North Chicago, Ill.

RUBRAFOLIN CAPSULES

PURPOSE: Oral treatment of common types of anemias of known cause.

COMPOSITION: Rubramin (Squibb vitamin B_{12} concentrate), and folic acid.

DOSAGE AND ADMINISTRATION: A starting dose of 1 capsule a day is suggested. If, after ten days or two weeks, the blood picture has not improved, it may be wise to double the dose. If the blood picture has not improved after three weeks of therapy, the patient should be placed on parenteral Rubramin immediately. One Rubrafolin Capsule a day may be sufficient to maintain the patient in remission. At the first sign of neurologic involvement, the patient should be placed on parenteral Rubramin.

CAUTIONS: The physician should automatically rule out patients with severe neurologic changes, severe gastrointestinal disturbances, or severe anemia, especially when pernicious anemia is present or suspected. Such patients may respond best to B_{12} parenterally in the early stages of therapy.

PRODUCER: E. R. Squibb & Sons, New York, N. Y.

BACITRACIN NASAL

PURPOSE: Treatment of acute and chronic sinusitis.

COMPOSITION: Supplied in dry form. When reconstituted provides 250 units of bacitracin per cubic centimeter, in an isotonic buffered vehicle containing 0.25 per cent desoxyephedrine hydrochloride.

DOSAGE AND ADMINISTRATION: May be given by dropper, by nebulizer, or the Proetz displacement method.

HOW SUPPLIED: In 15 cc. bottles.

PRODUCER: C.S.C. Pharmaceuticals, New York, N. Y.

SILALOID TABLETS

PURPOSE: Three-way treatment for gastric hyperacidity.

COMPOSITION: Hyoscyamine sulfate and atropine sulfate (neurotropic and myatropic action); phenobarbital (to allay nervous complications); and magnesium trisilicate (antacid action).

DOSAGE AND ADMINISTRATION: May be disintegrated in water, milk, orange juice, chewed, or swallowed.

HOW SUPPLIED: Bottles of 100, 500, and 1,000.

PRODUCER: VanPelt & Brown, Inc., Richmond, Va.

STERITROL

PURPOSE: Improved automatic control for use with Scanlan-Morris sterilizers.

DESCRIPTION: Any size wrapped, unwrapped, or liquid loads can be sterilized in the same Steritrol-equipped unit. Exhaust and sterilizing periods can be pre-set independently for from 0 to 60 minutes. Temperature selector varies in range for the minimum temperature required for any type of load. Exhaust selector can be set to produce a vacuum when sterilization is completed, promoting the drying of wrapped articles, or can be set for "unwrapped articles" or "liquids" so pressure will be maintained until the temperature has been lowered sufficiently to prevent boiling.

PRODUCER: Ohio Chemical and Surgical Equipment Co., Madison, Wis.

CADROSON TABLETS

PURPOSE: Dietary supplement in management of pregnancy and lactation and prevention of dental caries.
COMPOSITION: Each 6 Cadroson tablets contain:

Calcium	1.5 gm.
Phosphorus	0.75 gm.
Fluorine	not more than 0.5 mg.
Iron	15.0 mg.
Vitamin D	1,000 U.S.P. units

DOSAGE AND ADMINISTRATION: For adults and children above 12 years of age, 1 to 2 tablets three times a day; for children 3 to 12 years of age, in proportion.
HOW SUPPLIED: Bottles of 100 and 1,000.
PRODUCER: Sharp & Dohme, Inc., Philadelphia, Pa.

RUBBER CONDUCTIVE PARTS FOR HEIDBRINK ANESTHESIA APPARATUS

PURPOSE: Protection against the operating room hazard of static sparks.
DESCRIPTION: New development incorporates the conductivity as an inherent property of the rubber. All current conductivity requirements specified by the National Fire Protection Association are met. Conductivity is not impaired by sterilization.
PRODUCER: Ohio Chemical & Surgical Equipment Co., Madison, Wis.

PERIHEMIN* CAPSULES

PURPOSE: Treatment of blood deficiencies of common anemias.
COMPOSITION: For iron deficient anemias, each capsule contains ferrous iron, vitamin C, and vitamins derived from liver. For rarer large-cell anemias, the capsules contain vitamin B_{12}, folic acid, and stomach powder (pre-digested during manufacture).
HOW SUPPLIED: Bottles of 100 or 1,000 capsules.
PRODUCER: Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.
*Trademark.

SOLUTION CHOLINE GLUCONATE

PURPOSE: Treatment of abnormalities in lipid metabolism.
COMPOSITION: Provides 61.7 per cent of the gluconate salt or the equivalent of 25 per cent of choline base.
DOSAGE AND ADMINISTRATION: Usual dosage is one tablespoonful three times daily.
PRODUCER: C.S.C. Pharmaceuticals, New York, N. Y.

DODEX INJECTABLE

PURPOSE: Pure, crystalline vitamin B_{12} in saline solution for intramuscular injection in treatment of anemias.
COMPOSITION: Each cubic centimeter contains 15 micrograms of crystalline vitamin B_{12}.
DOSAGE AND ADMINISTRATION: Dosage depends on type of anemia and severity of condition, as well as patient's response. Range of dosage is from 7½ to 30 micrograms (½ to 2 cc.) once or twice a week.
HOW SUPPLIED: 1 cc. ampules, boxes of 6.
PRODUCER: Organon, Inc., Orange, N. J.

MYRINGACAINE*

PURPOSE: Relief of pain associated with myringitis.
COMPOSITION: Contains ethyl aminobenzoate 4 per cent, ephedrine hydrochloride 0.44 per cent, and orthohydroxyphenylmercuric chloride 0.05 per cent, in a glycerin and propylene glycol base.
DOSAGE AND ADMINISTRATION: Instilled into the external canal every one to three hours. Should be retained by a tampon.
HOW SUPPLIED: One-half ounce dropper bottles.
PRODUCER: The Upjohn Company, Kalamazoo, Mich.
*Trademark, Reg. U. S. Pat. Off.

CYTOBEX*

PURPOSE: Treatment of pernicious anemia, nutritional macrocytic anemia, tropical and nontropical sprue, and megaloblastic anemia in infancy.
COMPOSITION: Each 1 cc. ampule contains 15 micrograms of crystalline vitamin B_{12} dissolved in physiologic saline solution.
INDICATIONS FOR USE: Especially indicated in patients who are sensitive to liver extracts.
DOSAGE AND ADMINISTRATION: May be injected either subcutaneously or intramuscularly. Dosage should be adjusted to the needs of the patient.
HOW SUPPLIED: Boxes of 6 ampules.
PRODUCER: Parke, Davis & Company, Detroit, Mich.
*Trademark.

SEDAMYL

PURPOSE: Sedation during periods of emotional and nervous tension.
COMPOSITION: Each tablet contains 0.25 gm. of acetylbromdiethylacetylcarbamid.
DESCRIPTION: Provides sedation without hypnosis; the patient retains full control of mental and physical faculties.
DOSAGE AND ADMINISTRATION: Adults, 1 to 2 tablets with water, two or three times daily; children, in proportion to age.
HOW SUPPLIED: In tubes of 20 and bottles of 100 tablets.
PRODUCER: Schenley Laboratories, Inc., New York, N. Y.

ABBOCILLIN-DC

PURPOSE: Repository penicillin therapy.
COMPOSITION: 600,000 units of penicillin G procaine (double concentration) in aqueous suspension in a 1-cc. B-D* cartridge for use with a B-D* disposable cartridge syringe. Contains no oils or waxes, and flows freely through the needle. May be stored at room temperature.
DOSAGE AND ADMINISTRATION: For deep intramuscular use only. A single dose provides sustained high blood levels for more than forty-eight hours.
HOW SUPPLIED: Each package contains a disposable plastic syringe with an affixed 20-gauge, 1½-inch stainless steel needle and a glass cartridge-plunger containing a 1-cc. dose of 600,000 units of penicillin. The set is to be used once, then discarded.
PRODUCER: Abbott Laboratories, North Chicago, Ill.
*Trademark registered Becton-Dickinson & Co.

DR. Pepys' Pages

Personal Diary
and Observations on
Medical Life
by MORRIS FISHBEIN, M.D.

April 3—Again in Chicago and still remembering Boca Raton and all the good people who came together there for work and play. So sat me down at once to remove the accumulation of correspondence and scrivening that always await this traveler's return.

April 4—To the University of Illinois Union to meet at luncheon Franz Buchthal from Copenhagen and there came Gibbs, Hoffman, Friedell, Melchior Palyi and others. Then driving the guest to the University of Chicago and at night came Gerard, Louis Pollock, Bucy and Friedell and the ladies to dine and to talk late of new research on nerve and muscle.

April 6—To the airport to meet Hans Selye flying from Florida and with him to the Palmer House to meet the gentlemen and a lady from the press who interviewed him on stress and adaptation without much comprehension of the meaning. At night to the dinner and meeting of the Board of Governors of the Chicago Heart Association where Fenn presided and Selye spoke to a great multitude of medicos.

April 7—Early this morning to the dedication of the Morris Fishbein, Jr., Memorial Laboratories at La Rabida Sanitarium for children with rheumatic fever. Here came Ernest Irons, Mullin, Bay, Poncher, Hess, and many more of the medical elite; Dick Finnegan presided, the presentation made by Gilbert and the laboratories received by Bob Black; then Finnegan introduced all the notables, old Pepys introduced Selye who spoke beautifully of research, and responses made by McCulloch and Dorfman. Thereafter some hundreds to a luncheon prepared and tendered perfectly by Mistress Pepys.

Next to Mandel Hall in the University of Chicago where old Pepys debated with Professor Herman Finer from London the question: "Shall the United States Have a System of Compulsory Health Insurance?" for more than a thousand students with great excitement and with the feeling that these youngsters had been turned in their minds quite definitely toward the welfare state as the goal of a free people.

In the evening to a dinner of the Institute of Medicine for Professor Selye and then to the John B. Murphy Memorial to hear his address to the Institute of Medicine and the Chicago Medical Society with the greatest attendance of any medical meeting of these groups since the end of the war.

April 8—To my scrivening and in the afternoon to play at gin with Mark Soroko come from New York for the dedication and with Sam Mantel come from Indianapolis. Then by the Century to New York reading en route all the magazines missed through these days of activity.

April 9—To the Waldorf to meet all day with Louis de Rochemont and his staff and to talk of making some medical educational and health educational pictures which old Pepys may edit. Then late in the evening to see a motion picture called "The Scandal of Clochemere" produced in France. And it tells of a little village which erected a comfort station as a monument—and typically French it was.

April 10—In Washington for a meeting of the Committee on Veterans' Medical Problems which moved efficiently to extend scientific study of problems related to circulation, mental disturbance, liver function, and many more. Then by the afternoon train to New York and meeting H. M. Kiesewetter at "21" for dinner and talking until quite late of medical industry.

April 11—To breakfast come Ann Delafield of DuBarry School and then to meet with de Rochemont's staff. At noon to luncheon at "21" with Milton Biow and to talk of medical progress. In the afternoon to meet with E. M. Burke come from Chicago and Henry, also a lawyer, to consider problems of libel. Then for an hour chatting with Herb Mayes. For dinner with Barksdale Penick and John McPherrin and the ladies in Nino's cafe where the food delights the palate and then to see "The Cocktail Party" by T. S. Eliot, a play for intellectuals which leaves unsolved questions in the minds of those who see it giving much opportunity for discussion thereafter.

April 12—Early to meet with Milton Runyon and the staff at Doubleday; then to make several transcripts for radio with Betty Barton. To luncheon at the University Club where Cary Eggleston invited officials of the U. S. Pharmacopoeia and the honor guests who came for the dedication. Here were Paul Dunbar, Ernest Irons, Bob Fischelis and all the trustees, also Rasmussen from Denmark with whom old Pepys walked for a mile discussing the importance of a Council on Pharmacy for the Scandinavian countries. Then to the dedication of the new building of the Pharmacopoeia where Bob Swaim presided and saw most of the leaders of the drug industry and Leonard Scheele but not enough medicos.

Thereafter to a meeting of the U. S. Committee of the World Medical Association to discuss finance along with Howard Fonda, Fiske, Bobst, Basil O'Connor, Acuff, Thorek, and the representatives from the A.M.A. Then with Bobst and Willard Greenwald back to the Waldorf and here found Micky Axelrod and we played at mathematical skills until tired enough to go to bed.

April 13—To confer of new medical problems with Howard Sumner, Eugene Daily, R. J. Main and John Alden and to luncheon

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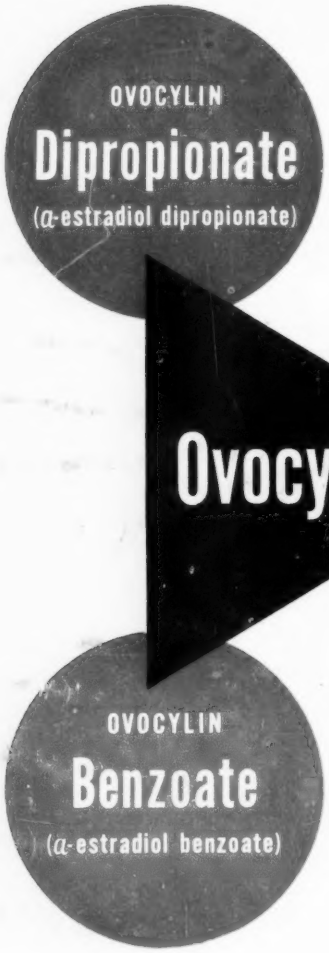

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